

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: TRUONG, Duc Examiner #: 64332 Date: Feb 9, 2004
Art Unit: 1711 Phone Number 301-2-681 Serial Number: 09/934,537
Mail Box and Bldg/Room Location: 6D71 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Structure on Table 2. Thanks.

STAFF USE ONLY

Searcher: R. Fuller
Searcher Phone #: _____
Searcher Location: _____
Date Searcher Picked Up: _____
Date Completed: 2/13/04
Searcher Prep & Review Time: 30
Clerical Prep Time: _____
Online Time: 45

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) 4
Bibliographic _____
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN ✓
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____



STIC Search Report

EIC 1700

STIC Database Tracking Number: 113860

**TO: Duc Truong
Location: REM 10D71
Art Unit : 1711
February 17, 2004**

Case Serial Number: 09/934537

**From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov**

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact **the EIC searcher or contact:**

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28



=> FILE REG

FILE 'REGISTRY' ENTERED AT 17:03:06 ON 13 FEB 2004
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STRUCTURE FILE UPDATES: 11 FEB 2004 HIGHEST RN 649538-27-2
DICTIONARY FILE UPDATES: 11 FEB 2004 HIGHEST RN 649538-27-2

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
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=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 17:03:10 ON 13 FEB 2004
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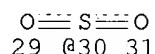
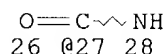
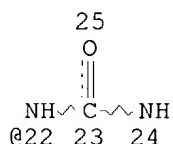
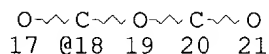
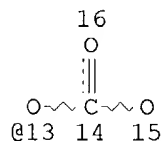
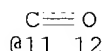
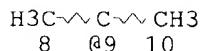
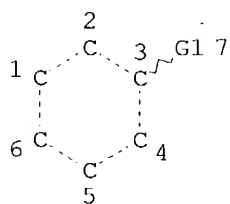
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FILE COVERS 1907 - 13 Feb 2004 VOL 140 ISS 7
FILE LAST UPDATED: 11 Feb 2004 (20040211/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> D QUE

L3 STR



VAR G1=O/CH2/9/11/13/18/27/22/30

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 31

STEREO ATTRIBUTES: NONE

L4 SCR 2043

L8 SCR 1929

L10 258550 SEA FILE=REGISTRY SSS FUL L3 AND L4 NOT L8

L11 352984 SEA FILE=HCAPLUS ABB=ON L10

L13 324 SEA FILE=HCAPLUS ABB=ON L11 AND BATTER? (5A) SEPARAT?

L14 207 SEA FILE=HCAPLUS ABB=ON L11 (L) BATTER? (L) SEPARAT?

L15 21 SEA FILE=HCAPLUS ABB=ON L14 AND (PARA OR P) (W) PHENYL?

L16 12 SEA FILE=HCAPLUS ABB=ON L14 AND POLYMER? (4A) MATERIAL?

L17 18 SEA FILE=HCAPLUS ABB=ON L11 (L) BATTER? (L) GASKET?

L18 48 SEA FILE=HCAPLUS ABB=ON (L15 OR L16 OR L17)

L19 29 SEA FILE=HCAPLUS ABB=ON L13 AND (PARA OR P) (W) PHENYL?

L20 55 SEA FILE=HCAPLUS ABB=ON L18 OR L19

↑
258,550 structures from
this query which
covers the structures
on table 2

=> D L20 ALL 1-55 HITSTR

L20 ANSWER 1 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:833921 HCAPLUS

DN 139:310090

ED Entered STN: 24 Oct 2003

TI Method for manufacture of separator in lead acid battery

IN Chen, Richard; Phanthapirat, Thaweechai; Ho, Chien-Hsien; Martinez, Alejandro

PA CSB Battery Co., Ltd., Taiwan

SO Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DT Patent

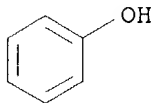
LA English

IC ICM H01M002-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1355366	A2	20031022	EP 2002-254678	20020703
	EP 1355366	A3	20040102		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	CN 1450675	A	20031022	CN 2002-105956	20020409
PRAI	CN 2002-105956	A	20020409		
AB	The invention provides a separator in lead acid battery, composed of fiber material and polymers; the polymers provide functions of increasing the mech. strength for separators, avoiding shortage between pos. and neg. electrodes, and decreasing the thickness of separators. The invention also provides a manufacturing method of battery separators, whereby polymers are used to coat or absorb to porous separators through means of spraying, immersing, brushing, adhering or other similar means, thus acquiring thinner battery separators with increased mech. strength.				
ST	lead acid battery separator manuf				
IT	Synthetic fibers				
	RL: DEV (Device component use); USES (Uses) (chemical; method for manufacture of separator in lead acid battery)				
IT	Secondary batteries				
	(lead-acid; method for manufacture of separator in lead acid battery)				
IT	Secondary battery separators				
	(method for manufacture of separator in lead acid battery)				
IT	Epoxy resins, uses				
	Glass fibers, uses				
	Polyester fibers, uses				
	RL: DEV (Device component use); USES (Uses) (method for manufacture of separator in lead acid battery)				
IT	7664-93-9, Sulfuric acid, uses 27073-41-2, Phenol polymer				
	RL: DEV (Device component use); USES (Uses) (method for manufacture of separator in lead acid battery)				
IT	67-63-0, Isopropyl alcohol, uses 67-64-1, Acetone, uses				
	RL: TEM (Technical or engineered material use); USES (Uses) (solvent; method for manufacture of separator in lead acid battery)				
IT	7631-86-9, Silica, uses				
	RL: MOA (Modifier or additive use); USES (Uses) (water-absorbing additive; method for manufacture of separator in lead acid battery)				
IT	27073-41-2, Phenol polymer				
	RL: DEV (Device component use); USES (Uses) (method for manufacture of separator in lead acid battery)				
RN	27073-41-2 HCAPLUS				
CN	Phenol, homopolymer (9CI) (CA INDEX NAME)				
CM	1				
CRN	108-95-2				
CMF	C6 H6 O				



L20 ANSWER 2 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:737226 HCAPLUS
 DN 139:248038
 ED Entered STN: 19 Sep 2003
 TI Method for manufacture of separator for lead acid battery
 IN Chen, Richard; Ho, Chien-hsien; Phanthapirat, Thaweechai; Martinez, Alejandro
 PA Csb Battery Co., Ltd., Taiwan
 SO U.S. Pat. Appl. Publ., 15 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM H01M002-16
 ICS H01M002-18
 NCL 429249000; 429251000; 429252000; 429144000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003175593	A1	20030918	US 2002-134505	20020430
	JP 2003272592	A2	20030926	JP 2002-184223	20020625
PRAI	TW 2002-91104756	A	20020313		
AB	The invention provides a separator in lead acid battery, composed of fiber material and polymers; the polymers provide functions of increasing the mech. strength for separators, avoiding shortage between pos. and neg. electrodes, and decreasing the thickness of separators. The invention also provides a manufacturing method of battery separators, whereby polymers are used to coat or absorb to porous separators through means of spraying, immersing, brushing, adhering or other similar means, thus acquiring thinner battery separators with increased mech. strength.				
ST	lead acid battery separator fabrication				
IT	Brushes (brushing with; method for manufacture of separator for lead acid battery)				
IT	Secondary batteries (lead-acid; method for manufacture of separator for lead acid battery)				
IT	Secondary battery separators Spraying Strength Wetting (method for manufacture of separator for lead acid battery)				
IT	Glass fibers, uses Polyester fibers, uses Synthetic fibers RL: DEV (Device component use); USES (Uses) (method for manufacture of separator for lead acid battery)				
IT	Epoxy resins, uses RL: MOA (Modifier or additive use); USES (Uses) (method for manufacture of separator for lead acid battery)				

IT 7664-93-9, Sulfuric acid, uses
 RL: DEV (Device component use); USES (Uses)
 (method for manufacture of separator for lead acid battery)

IT 7631-86-9, Silica, uses **27073-41-2**, Phenol polymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (method for manufacture of **separator** for lead acid **battery**)

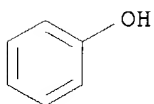
IT 67-63-0, Isopropyl alcohol, uses 67-64-1, Acetone, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent; method for manufacture of separator for lead acid battery)

IT **27073-41-2**, Phenol polymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (method for manufacture of **separator** for lead acid **battery**)

RN 27073-41-2 HCAPLUS
 CN Phenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 108-95-2
 CMF C6 H6 O



L20 ANSWER 3 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:279714 HCAPLUS
 DN 138:306748
 ED Entered STN: 11 Apr 2003
 TI **Separator** for secondary **battery** and the
battery using the **separator**
 IN Sato, Yoshinori; Takase, Toshiaki; Michihata, Toyofumi
 PA Japan Vilene Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS D06M011-07; D06M011-54; D21H013-16; D21H027-00; D04H001-54;
 H01M010-30
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003109568	A2	20030411	JP 2001-299072	20010928
PRAI	JP 2001-299072		20010928		

AB The separator comprises a Me pentene polymer, a polymer having m.p. lower than the Me pentene polymer, and Me pentene composite fibers contains ≤40 % Me pentene polymer on its surface; where the separator contains a fused fiber sheet by the low m.p. polymer of the Me pentene composite fibers.

ST secondary **battery separator** methylpentene polymer composite fiber

IT Secondary **battery separators**
 (separators containing methylpentene polymer composite fibers for secondary batteries)

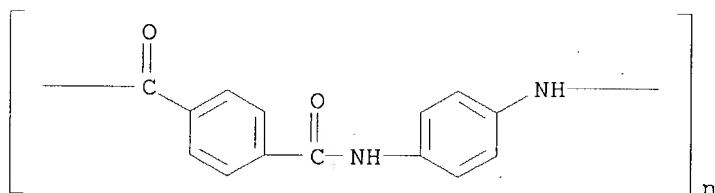
IT Polythiophenylenes
 RL: DEV (Device component use); USES (Uses)
 (separators containing methylpentene polymer composite fibers for secondary batteries)

IT 9003-07-0, Polypropylene **24938-64-5**, Poly-**p-phenylene** terephthalamide 25155-83-3
 RL: DEV (Device component use); USES (Uses)
 (separators containing methylpentene polymer composite fibers for secondary batteries)

IT **24938-64-5**, Poly-**p-phenylene** terephthalamide
 RL: DEV (Device component use); USES (Uses)
 (separators containing methylpentene polymer composite fibers for secondary batteries)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 4 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:58815 HCAPLUS

DN 138:91184

ED Entered STN: 24 Jan 2003

TI Polyimide porous film with uniform pore diameter and uniform interpore distance

IN Ohya, Shyusei; Fujii, Yuuichi; Yao, Shigeru; Asano, Yukihiro; Nakayama, Kimio; Fukunaga, Kenji

PA Ube Industries, Ltd., Japan

SO U.S. Pat. Appl. Publ., 13 pp.
 CODEN: USXXCO

DT Patent

LA English

IC ICM C08J009-00

NCL 521050000

CC 38-3 (Plastics Fabrication and Uses)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003018094	A1	20030123	US 2002-201351	20020722
	US 6565962	B2	20030520		
	JP 2003026849	A2	20030129	JP 2001-221268	20010723
	JP 2003147118	A2	20030521	JP 2001-320374	20011018
	JP 2003138057	A2	20030514	JP 2001-336239	20011101
	JP 2003165128	A2	20030610	JP 2001-364527	20011129
PRAI	JP 2001-221268	A	20010723		
	JP 2001-260148	A	20010829		

JP 2001-320374 A 20011018
 JP 2001-336239 A 20011101
 JP 2001-364527 A 20011129

AB A polyimide porous film obtained by drying and imidizing a polyimide precursor porous film which is substantially homogeneous on both sides, the polyimide porous film having pores on both sides wherein the pores all satisfy the conditions: (I) the difference in the mean pore size of both sides is less than 200% based on the smaller average value of the mean pore size, (II) the coefficient of variation for the pore size on each side is smaller than 70%, (III) the coefficient of variation for the pore centroid distance on each side is smaller than 50%, and (IV) the mean pore size on each side is 0.05-5 μ m. Thus, 3,3',4,4'-biphenyltetracarboxylic dianhydride and **p-phenylenediamine** was dissolved in NMP was polymerized at 40° for 6 h to give a precursor solution Then, a non-solvent 1-butanol was gradually added to the solution, cast on a glass substrate to give a homogeneous porous film. The film is useful for a **battery separator** or a micro-filter.

ST polyimide porous film biphenyltetracarboxylic dianhydride phenylenediamine copolymer

IT Filters

(microfilters; production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT Glycols, uses

RL: NUU (Other use, unclassified); USES (Uses)
 (non-solvent; production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT Secondary **battery separators**

(production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT Polyimides, uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT 67-63-0, 2-Propanol, uses 71-36-3, 1-Butanol, uses

RL: NUU (Other use, unclassified); USES (Uses)
 (non-solvent; production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT **26298-81-7P**, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-4,4'-diaminodiphenyl ether copolymer 29319-22-0P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-**p-phenylenediamine** copolymer

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT 56-81-5, Glycerin, uses 107-21-1, Ethylene glycol, uses 127-19-5, DMAC 872-50-4, NMP, uses

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; production of polyimide porous film with uniform pore diameter and uniform interpore distance)

IT **26298-81-7P**, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-4,4'-diaminodiphenyl ether copolymer

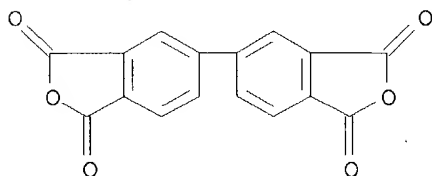
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(production of polyimide porous film with uniform pore diameter and uniform interpore distance)

RN 26298-81-7 HCAPLUS
 CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with
 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

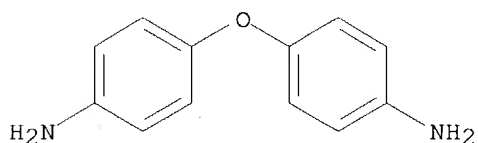
CM 1

CRN 2420-87-3
 CMF C16 H6 O6



CM 2

CRN 101-80-4
 CMF C12 H12 N2 O



L20 ANSWER 5 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:40436 HCAPLUS
 DN 138:109576
 ED Entered STN: 17 Jan 2003
 TI secondary lithium battery for mounting on substrate
 IN Nakajima, Hiroshi; Yoshimura, Seiji; Kamino, Maruo; Imanishi, Masahiro;
 Nishiguchi, Nobuhiro; Fujimoto, Minoru
 PA Sanyo Electric Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M010-40
 ICS H01M002-08; H01M002-16; H01M004-58
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003017120	A2	20030117	JP 2001-207394	20010709
PRAI	JP 2001-126978	A	20010425		
AB	The battery has a separator between a cathode and a Li-Al alloy anode, and an electrolyte solution, containing a salt and a solvent mixture, in a container; and gaskets sealing the container; where the solvent mixture contains sulfolane and 1,2-dimethoxy ethane. Preferably, the cathode comprises a				

spinal structured Li Mn composite oxide and the gasket contains polyphenylene sulfide and/or PEEK, and a cellulose resin.

ST substrate mounting secondary lithium battery compn structure

IT Polythiophenylenes
 RL: DEV (Device component use); USES (Uses)
 (compns. and structure of secondary lithium batteries containing gaskets)

IT Battery electrolytes
 (compns. and structure of secondary lithium batteries containing sulfolanes and 1,2-dimethoxy ethanes in electrolyte solns.)

IT Secondary batteries
 (lithium; compns. and structure of secondary lithium batteries containing sulfolanes and 1,2-dimethoxy ethanes in electrolyte solns.)

IT 7439-93-2, Lithium, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; compns. and structure of secondary lithium batteries containing Li Mn oxide cathodes and Li-alloy anodes)

IT 1314-62-1, Vanadium oxide, uses
 RL: DEV (Device component use); USES (Uses)
 (cathode; compns. and structure of secondary lithium batteries containing Li Mn oxide cathodes and Li-alloy anodes)

IT 90076-65-6
 RL: DEV (Device component use); USES (Uses)
 (compns. and structure of secondary Li batteries containing sulfolanes and 1,2-dimethoxy ethanes in Li salt electrolyte solns.)

IT 12031-92-4, Lithium manganese oxide (Li1.33Mn1.67O4) 12057-17-9, Lithium manganese oxide (LiMn2O4) 12201-25-1, Lithium manganese oxide (Li3MnO4) 12798-95-7 153327-02-7, Boron lithium manganese oxide 155472-67-6, Lithium manganese oxide (Li1.05Mn1.95O4) 176979-23-0, Lithium manganese oxide (Li1.15Mn1.85O4) 201006-03-3, Lithium manganese oxide (Li1.3Mn1.7O4) 209462-06-6, Lithium manganese oxide (Li1.36Mn1.64O4) 486450-89-9, Lithium manganese oxide (Li0.22Mn1.78O4)
 RL: DEV (Device component use); USES (Uses)
 (compns. and structure of secondary lithium batteries containing Li Mn oxide cathodes and Li-alloy anodes)

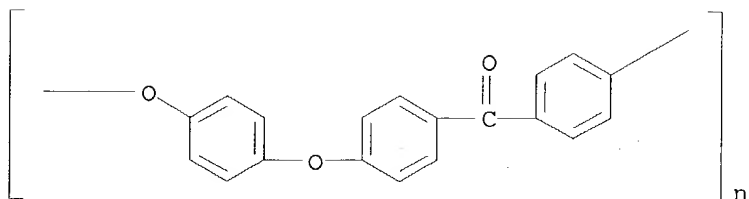
IT 9004-34-6D, Cellulose, resin, uses **31694-16-3**, PEEK
 RL: DEV (Device component use); USES (Uses)
 (compns. and structure of secondary lithium **batteries** containing **gaskets**)

IT 96-48-0, γ -Butyrolactone 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxy ethane 126-33-0, Sulfolane
 RL: DEV (Device component use); USES (Uses)
 (compns. and structure of secondary lithium batteries containing sulfolanes and 1,2-dimethoxy ethanes in electrolyte solns.)

IT **31694-16-3**, PEEK
 RL: DEV (Device component use); USES (Uses)
 (compns. and structure of secondary lithium **batteries** containing **gaskets**)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



L20 ANSWER 6 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:872734 HCAPLUS
 DN 137:355390
 ED Entered STN: 19 Nov 2002
 TI Microporous polymer separator for secondary lithium battery and its preparation method
 IN Gu, Hui; Huang, Xuejie; Chen, Liquan; Ren, Xumei; Wu, Feng; Shan, Zhongjiang
 PA Inst. of Physics, Chinese Academy of Sciences, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 21 pp.
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 IC ICM H01M002-16
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 35

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1322019	A	20011114	CN 2000-107243	20000429
PRAI	CN 2000-107243		20000429		

AB The **materials** for preparation of microporous **polymer** separator for secondary lithium battery include thermosetting polymer (20-80%), inducing agent (0.1-5.0%), crosslinking agent such as epoxy resin crosslinking agent or unsatd. polyester crosslinking agent, promotor, thermoplastic polymer having a m.p. 60-140°C, nanometer oxides, solvents, etc. The thermosetting polymer is selected from epoxy resins, unsatd. polyesters, phenol-formaldehyde copolymers, and polyimides. The inducing agent is selected from tert-Bu hydrogen peroxide, isopropylbenzyl hydroperoxide, di(tert-butyl) peroxide, acetyl hydroperoxide, persadox, acetyl peroxide, tert-Bu performate, Me Et ketone peroxide, cyclohexanone peroxide, etc. The epoxy resin crosslinking agent is selected from diethylaminopropylamine, amino-resin, amino-glyceryl ether, amino-epoxyethane addition products, trimethylamine and its derivs., phthalic anhydride, maleic anhydride, hexahydrophthalic anhydride, 1,2,4,5-benzene tetracarboxylic anhydride, 2-ethyl-4-Me imidazole, etc. The unsatd. polyester crosslinking agent is selected from styrene, Me methacrylate, diallyl phthalate, Me styrene, and triallyl cyanurate. The promotor is selected from bisphenol A, phenol, 1,3- benzenediol, nonyl phenol, 2,4,6-tri(dimethylaminomethyl)phenol, mercapto acetic acid, tri-Ph phosphinic acid esters, boron trifluoride ethylamine, benzyl dimethylamine, N,N-di-Me aniline, pyridine, 2-ethyl-4-Me imidazole, triethanolamine borate, etc. The unsatd. polyester promotor is selected from cyclohexane carboxylic acid cobalt salt, Zn octanoate, N,N-di-Me aniline, N,N-di-Et aniline, N,N-dimethyl-4-Me aniline, 2,4-pentanedione, etc. The thermoplastic polymer is selected from PVDF, poly(.ε.-caprolactone) (PCL), poly(1-butene), poly(1-pentene),

polystyrene, polyformaldehyde, EVA, PBMA, SBS, polyallyl methacrylate, acetyl cellulose, poly(1,3-butadiene), poly(di-Pr oxalate), poly(ethylene succinate), nylon 610, poly(di-Me allyl), poly(valeraldehyde), etc. The separator is prepared by applying a solution of the components to a substrate (glass, plastics, metal), evaporating to the disappearance of viscosity, and then drying in vacuum at a temperature below the softening point of the thermoplastic polymer for 12-24 h.

- ST microporous polymer separator secondary lithium battery
- IT Epoxy resins, uses
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
 (618-type; microporous polymer separator for secondary lithium battery and its preparation method)
- IT Secondary batteries
 (lithium; microporous polymer separator for secondary lithium battery and its preparation method)
- IT Secondary battery separators
 (microporous polymer separator for secondary lithium battery and its preparation method)
- IT Fluoropolymers, uses
 Phenolic resins, uses
 Polyimides, uses
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
 (microporous polymer separator for secondary lithium battery and its preparation method)
- IT Polyesters, uses
 RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
 (unsatd.; microporous polymer separator for secondary lithium battery and its preparation method)
- IT 7631-86-9, Silica, uses
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (microporous polymer separator for secondary lithium battery and its preparation method)
- IT 68-11-1, Mercapto acetic acid, uses 75-23-0, Boron trifluoride ethylamine 75-50-3, Trimethylamine, uses 75-91-2, tert-Butyl hydrogen peroxide 79-21-0, Acetyl hydroperoxide 80-05-7, Bisphenol A, uses 80-62-6, Methyl methacrylate 85-42-7, Hexahydrophthalic anhydride 85-44-9, Phthalic anhydride 89-32-7 90-72-2 91-66-7, N,N-Diethyl aniline 94-36-0, Peroxide, dibenzoyl, uses 99-97-8, N,N-Dimethyl-4-methyl aniline 100-42-5, Styrene, uses 101-37-1, Triallyl cyanurate 103-83-3, Benzyl dimethylamine 104-78-9 108-31-6, Maleic anhydride, uses 108-46-3, 1,3-Benzenediol, uses 108-95-2, Phenol, uses 110-05-4, Di(tert-butyl) peroxide 110-22-5, Acetyl peroxide 110-86-1, Pyridine, uses 121-69-7, N,N-Dimethyl aniline, uses 123-54-6, 2,4-Pentanedione, uses 131-17-9, Diallyl phthalate 283-56-7, Triethanolamine borate 504-66-5, Dicyanamide 557-09-5, Zinc octanoate 819-50-1 931-36-2, 2-Ethyl 4-methyl imidazole 1338-23-4, Methyl ethyl ketone peroxide 1706-96-3, Phenyl diphenylphosphinate 7445-54-7, Cyclohexane carboxylic acid cobalt salt 12262-58-7, Cyclohexanone peroxide 25013-15-4, Benzene, ethenylmethyl- 25154-52-3, Nonyl phenol 82231-60-5, Isopropyl benzyl hydroperoxide
 RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
 (microporous polymer separator for secondary lithium battery and its

preparation method)

IT 9002-81-7, Polyformaldehyde 9003-17-2, Poly(1,3-butadiene) 9003-28-5, Poly(1-butene) **9003-35-4** 9003-53-6, Polystyrene 9003-63-8, 2-Propenoic acid, 2-methyl-, butyl ester, homopolymer 9004-35-7, Acetyl cellulose 9008-66-6, Nylon 610 24937-78-8, EVA 24937-79-9, PVDF 24980-41-4, Poly(.ε.-caprolactone) 25189-05-3, Polyallyl methacrylate 25248-42-4, Poly[oxy(1-oxo-1,6-hexanediyl)] 25569-53-3, Poly(ethylene succinate) 25587-79-5, Poly(1-pentene) 34089-99-1, 1,3-Propanediol polymer with Ethanedioic acid 51344-79-7, Poly(valeraldehyde) 106107-54-4, SBS

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)

(microporous polymer **separator** for secondary lithium **battery** and its preparation method)

IT **9003-35-4**

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)

(microporous polymer **separator** for secondary lithium **battery** and its preparation method)

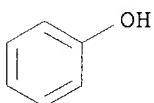
RN 9003-35-4 HCAPLUS

CN Phenol, polymer with formaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 108-95-2

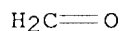
CMF C6 H6 O



CM 2

CRN 50-00-0

CMF C H2 O



L20 ANSWER 7 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:734242 HCAPLUS

DN 137:265576

ED Entered STN: 27 Sep 2002

TI **Battery separator**

IN Tanaka, Masahisa

PA Japan Vilene Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF

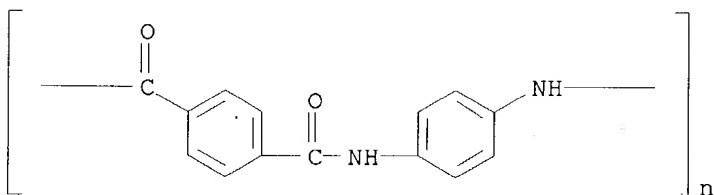
DT Patent

LA Japanese

IC ICM H01M002-16
ICS D04H001-42; D04H001-54; D21H013-20; D21H013-26; D21H027-12

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

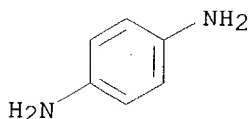
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002279958	A2	20020927	JP 2001-79168	20010319
PRAI	JP 2001-79168		20010319		
AB	The separator is a nonwoven fabric containing poly(phenylene sulfide) fibers 30-77, fibers having Young's modulus >6000 kg/mm ² 3-30, and melt bonding fibers 20-50%; where the fibers are not fibrillates.				
ST	battery separator nonwoven fabric polyphenylene sulfide fiber mixt				
IT	Secondary battery separators (compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	Polythiophenylenes RL: DEV (Device component use); USES (Uses) (compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	Polyolefin fibers RL: DEV (Device component use); USES (Uses) (ethylene; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	Polythiophenylenes RL: DEV (Device component use); USES (Uses) (fiber; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	Polyamide fibers, uses RL: DEV (Device component use); PRP (Properties); USES (Uses) (p-phenylenediamine -terephthalic acid; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	Polypropene fibers, uses RL: DEV (Device component use); USES (Uses) (polyethylene sheathed; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	Synthetic polymeric fibers, uses RL: DEV (Device component use); USES (Uses) (polythiophenylenes; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	9002-88-4, Polyethylene RL: DEV (Device component use); USES (Uses) (fibers; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	24938-64-5, Poly(p-phenylene terephthalamide) 25035-37-4, Poly(p-phenylene terephthalamide) RL: DEV (Device component use); PRP (Properties); USES (Uses) (fibers; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
IT	24938-64-5, Poly(p-phenylene terephthalamide) 25035-37-4, Poly(p-phenylene terephthalamide) RL: DEV (Device component use); PRP (Properties); USES (Uses) (fibers; compsn. of poly(phenylene sulfide) fiber based fibrillate free nonwoven fabrics for battery separators)				
RN	24938-64-5 HCAPLUS				
CN	Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)				



RN 25035-37-4 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA
 INDEX NAME)

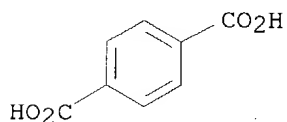
CM 1

CRN 106-50-3
 CMF C6 H8 N2



CM 2

CRN 100-21-0
 CMF C8 H6 O4



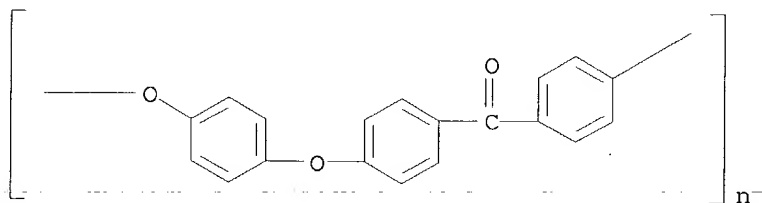
L20 ANSWER 8 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:734241 HCAPLUS
 DN 137:265575
 ED Entered STN: 27 Sep 2002
 TI Organic electrolyte battery
 IN Nagura, Satoshi; Hara, Masami; Ikeda, Takaomi; Watase, Takahiro;
 Yamaguchi, Masaki; Okamoto, Eiji
 PA Kanebo, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-08
 ICS H01M004-02; H01M004-58; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

PATENT NO. KIND DATE APPLICATION NO. DATE

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PI      JP 2002279948      A2      20020927      JP 2001-80011      20010321
PRAI    JP 2001-80011      20010321
AB      The battery has a power generating unit, having an electrolyte retaining
        separator between a cathode and an anode, enclosed between a cathode case
        and an anode case; where a insulator gasket is hot pressed between the
        cases. The gasket is preferably a polyetheretherketone, poly(phenylene
        sulfide), or a fluoropolymer.
ST      org electrolyte battery hot pressed gasket
IT      Polyketones
        RL: DEV (Device component use); PEP (Physical, engineering or chemical
        process); PYP (Physical process); PROC (Process); USES (Uses)
        (polyether-; secondary organic electrolyte batteries with hot pressed
        insulator gaskets between electrode cases)
IT      Polyethers, uses
        RL: DEV (Device component use); PEP (Physical, engineering or chemical
        process); PYP (Physical process); PROC (Process); USES (Uses)
        (polyketone-; secondary organic electrolyte batteries with hot pressed
        insulator gaskets between electrode cases)
IT      Gaskets
        Secondary batteries
        (secondary organic electrolyte batteries with hot pressed insulator
        gaskets between electrode cases)
IT      Fluoropolymers, uses
        RL: DEV (Device component use); PEP (Physical, engineering or chemical
        process); PYP (Physical process); PROC (Process); USES (Uses)
        (secondary organic electrolyte batteries with hot pressed insulator
        gaskets between electrode cases)
IT      9003-07-0, Polypropylene 25233-34-5, Polythiophene 31694-16-3
        RL: DEV (Device component use); PEP (Physical, engineering or chemical
        process); PYP (Physical process); PROC (Process); USES (Uses)
        (secondary organic electrolyte batteries with hot pressed
        insulator gaskets between electrode cases)
IT      31694-16-3
        RL: DEV (Device component use); PEP (Physical, engineering or chemical
        process); PYP (Physical process); PROC (Process); USES (Uses)
        (secondary organic electrolyte batteries with hot pressed
        insulator gaskets between electrode cases)
RN      31694-16-3 HCAPLUS
CN      Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA
        INDEX NAME)

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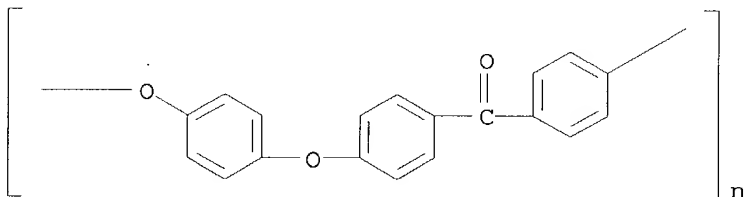


L20 ANSWER 9 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:696518 HCAPLUS
DN 137:204033
ED Entered STN: 13 Sep 2002
TI Coin-shaped nonaqueous electrolyte lithium secondary battery

IN Watanabe, Shunji; Kanno, Yoshimi; Takasugi, Shinichi; Sakai, Tsugio
 PA Japan
 SO U.S. Pat. Appl. Publ., 12 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM H01M010-04
 NCL 429090000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002127467	A1	20020912	US 2001-966718	20010927
	JP 2003092149	A2	20030328	JP 2001-291278	20010925
PRAI	JP 2000-296059	A	20000928		
	JP 2001-117212	A	20010416		
	JP 2001-214053	A	20010713		
	JP 2001-291278	A	20010925		
AB	A nonaq. electrolyte secondary battery capable of being assembled by reflow soldering is provided. The assembled nonaq. electrolyte secondary battery is heat-treated following the temperature-time profile close to that for the reflow soldering, and then provided with the terminals by welding.				
ST	lithium battery secondary nonaq electrolyte				
IT	Butyl rubber, uses Rubber, uses RL: TEM (Technical or engineered material use); USES (Uses) (adhesive based on, sealant; nonaq. electrolyte secondary battery)				
IT	Secondary batteries (button-type; nonaq. electrolyte secondary battery)				
IT	Liquid crystals, polymeric (gasket; nonaq. electrolyte secondary battery)				
IT	Polythiophenylenes RL: DEV (Device component use); USES (Uses) (gasket; nonaq. electrolyte secondary battery)				
IT	Secondary batteries (lithium; nonaq. electrolyte secondary battery)				
IT	Gaskets Sealing compositions (nonaq. electrolyte secondary battery)				
IT	Asphalt RL: MOA (Modifier or additive use); USES (Uses) (nonaq. electrolyte secondary battery)				
IT	Polyketones RL: DEV (Device component use); USES (Uses) (polyether-, gasket; nonaq. electrolyte secondary battery)				
IT	Polyethers, uses RL: DEV (Device component use); USES (Uses) (polyketone-, gasket; nonaq. electrolyte secondary battery)				
IT	Soldering (reflow; nonaq. electrolyte secondary battery)				
IT	Adhesives (rubber-based, sealant; nonaq. electrolyte secondary battery)				
IT	9010-85-9 RL: TEM (Technical or engineered material use); USES (Uses) (butyl rubber, adhesive based on, sealant; nonaq. electrolyte secondary battery)				
IT	31694-16-3				

RL: DEV (Device component use); USES (Uses)
 (gasket; nonaq. electrolyte secondary battery)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 1313-27-5,
 Molybdenum trioxide, uses 7631-86-9, Silica, uses 12036-22-5, Tungsten
 dioxide 14283-07-9, Lithium tetrafluoroborate
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT 108-88-3, Toluene, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonaq. electrolyte secondary battery)
 IT **31694-16-3**
 RL: DEV (Device component use); USES (Uses)
 (gasket; nonaq. electrolyte secondary battery)
 RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA
 INDEX NAME)



L20 ANSWER 10 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:648463 HCAPLUS
 DN 137:188208
 ED Entered STN: 28 Aug 2002
 TI Poly(ether ether ketone) composition and gasket part for battery
 IN Tsujikawa, Yozaburo
 PA Otsuka Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08L071-08
 ICS C08K007-08; C08K009-04; F16J015-10; H01M002-08
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002241600	A2	20020828	JP 2001-45153	20010221
PRAI	JP 2001-45153		20010221		
AB	The composition contains poly(ether ether ketone) (PEEK) and K ₂ Ti ₈ O ₁₇ (I) fiber. The battery gasket is that obtained by molding of the composition showing retention of mech. strength for long period. Thus, 70 parts PEEK (Victrex 450G) and 30 parts I fiber were mixed, melt-kneaded at 380°, pelletized, an injection-molded to give a test piece showing retention of initial compressive strain after 1-yr storage at room temperature				
ST	polyether ether ketone battery gasket; potassium octatitanate fiber polyether ether ketone; storage stability mech strength battery gasket				
IT	Gaskets Impact-resistant materials				

Secondary batteries
 (poly(ether ether ketone) containing potassium octatitanate fiber for battery gasket)

IT Coupling agents
 (poly(ether ether ketone) containing potassium octatitanate fiber treated with)

IT Polyketones
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (polyether-; poly(ether ether ketone) containing potassium octatitanate fiber for battery gasket)

IT Polyethers, uses
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (polyketone-; poly(ether ether ketone) containing potassium octatitanate fiber for battery gasket)

IT Synthetic fibers
 RL: MOA (Modifier or additive use); USES (Uses)
 (potassium octatitanate; poly(ether ether ketone) containing potassium octatitanate fiber for battery gasket)

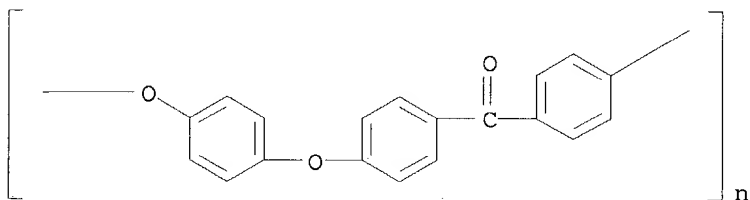
IT 59766-31-3, Potassium octatitanate
 RL: MOA (Modifier or additive use); USES (Uses)
 (fibers; poly(ether ether ketone) containing potassium octatitanate fiber for battery gasket)

IT **31694-16-3, Victrex 450G**
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (poly(ether ether ketone) containing potassium octatitanate fiber for **battery gasket**)

IT **31694-16-3, Victrex 450G**
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (poly(ether ether ketone) containing potassium octatitanate fiber for **battery gasket**)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



L20 ANSWER 11 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:611820 HCAPLUS

DN 137:172373

ED Entered STN: 16 Aug 2002

TI Electrochemical element for surface mounting and its manufacture

IN Furuhashi, Toshiaki; Hirota, Tetsumasa; Nishiguchi, Nobuhiro; Minamida, Yoshitaka; Kurimura, Masaaki; Kondo, Masao

PA Sanyo Electric Co., Ltd., Japan; Sanyo Energy Tottori K. K.

SO Jpn. Kokai Tokkyo Koho, 8 pp.

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-08
 ICS B23K001-00; B23K001-008; B23K031-02; H01M010-40; H05K003-34
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002231198	A2	20020816	JP 2001-24616	20010131
PRAI	JP 2001-24616		20010131		

AB The element, preferably a secondary Li battery, has a main body stored in a packaging can, with a cover sealed by a resin based gasket to the opening of the can, where the gasket has the temperature of the 1st endothermic peak of the gasket on its DSC pattern, is higher than the reflow temperature during surface mounting of the element. The gasket comprises polyether ether ketone based resin containing inorg. fibers having average length 10-20 μm . The element is prepared by using an annealed gasket, where the annealing temperature is higher than the reflow temperature for the mounting.

ST heat resistance gasket manuf annealing temp lithium battery

IT Annealing

Gaskets

(compns. and manufacture of inorg. fiber containing resin gaskets for surface

mounted secondary lithium batteries)

IT Synthetic fibers

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(potassium titanate; compns. and manufacture of inorg. fiber containing

resin

gaskets for surface mounted secondary lithium batteries)

IT Secondary batteries

(sealed; compns. and manufacture of inorg. fiber containing resin gaskets

for

surface mounted secondary lithium batteries)

IT **31694-16-3**, PEEK

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(compns. and manufacture of inorg. fiber containing resin **gaskets** for surface mounted secondary lithium **batteries**)

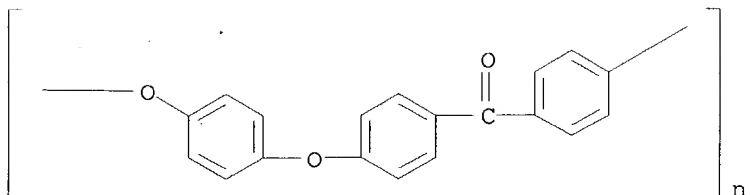
IT **31694-16-3**, PEEK

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(compns. and manufacture of inorg. fiber containing resin **gaskets** for surface mounted secondary lithium **batteries**)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



L20 ANSWER 12 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:388544 HCAPLUS

DN 136:388480

ED Entered STN: 24 May 2002

TI Nonwoven fabrics and their manufacture by wet process for **battery separators**

IN Takada, Yoshinori; Tadokoro, Yoshiyuki; Ichianagi, Ryuji

PA Asahi Kasei Corporation, Japan; Toyobo Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-16

ICS D21H013-20; D21H015-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 40

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002151043	A2	20020524	JP 2000-348126	20001115
PRAI	JP 2000-348126		20001115		

AB The nonwoven fabrics for **battery separators**, contain thermoplastic resin staple fibers, poly(p-phenylenebenzobisoxazole) fibers or their pulp, and thermal bonding fibers, wherein the fibers are intermingled with each other by water flow to form 3-dimensional structures and bonded by melting of the thermal bonding fibers. Separators using the nonwoven fabrics show good mech. strength, gas permeability, and high liquid absorption capacity, and prevent short-circuits of batteries.

ST polyphenylenebenzobisoxazole fiber nonwoven fabric **separator battery**; thermoplastic polyphenylenebenzobisoxazole fiber fabric **separator battery**

IT Polyamide fibers, uses

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(66, nonwoven fabrics; manufacture of nonwoven fabrics using poly(p-phenylenebenzobisoxazole) fibers for **battery separators**)

IT Polyamide fibers, uses

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(Unimelt UL 61, nonwoven fabrics; manufacture of nonwoven fabrics using poly(p-phenylenebenzobisoxazole) fibers for **battery separators**)

IT Vinal fibers

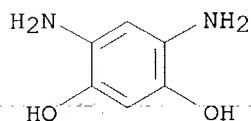
- RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (biconstituent with polypropylene fiber, sheath-core, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT Polyolefin fibers
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (ethylene, bicomponent with polypropylene fiber, sheath-core, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT Polybenzoxazoles
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, Zylon, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT Polyamides, uses
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT Nonwoven fabrics
 Primary **battery separators**
 Secondary **battery separators**
 (manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT Polypropene fibers, uses
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT Synthetic polymeric fibers, uses
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (polybenzoxazoles, Zylon, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT 310881-95-9, DF 2 (fiber)
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (DF 2, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT 9002-88-4, Polyethylene
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

- process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, bicomponent with polypropylene fiber, sheath-core, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT 9002-89-5, Poly(vinyl alcohol)
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, biconstituent with polypropylene fiber, sheath-core, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT 25085-53-4, Isotactic polypropylene 32131-17-2, Nylon 66, uses 60871-72-9 **90960-37-5**
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT 425622-46-4, ESC (fiber)
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- IT **90960-37-5**
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber, nonwoven fabrics; manufacture of nonwoven fabrics using poly(**p-phenylenebenzobisoxazole**) fibers for **battery separators**)
- RN 90960-37-5 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 4,6-diamino-1,3-benzenediol (9CI) (CA INDEX NAME)

CM 1

CRN 15791-87-4

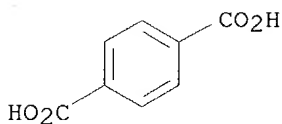
CMF C6 H8 N2 O2



CM 2

CRN 100-21-0

CMF C8 H6 O4



L20 ANSWER 13 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:368040 HCAPLUS
 DN 136:372245
 ED Entered STN: 18 May 2002
 TI Nonaqueous electrolyte secondary **battery, separator**
 used in it, and its manufacture
 IN Ueda, Hideyuki; Kuranaka, Satoshi; Nanai, Norishige
 PA Matsushita Electric Industrial Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002141042	A2	20020517	JP 2000-335502	20001102
	JP 3419393	B2	20030623		
PRAI	JP 2000-335502		20001102		

AB The battery has a 9-17- μ m separator comprising a successive laminate of (A) a 2-3- μ m heat-resistant porous polymer cathode-side layer, which may be an aramid resin, (B) a 5-9- μ m porous polyolefin intermediate layer, which may be polyethylene, and (C) a gel polymer anode-side layer, which may be a 2-3- μ m vinylidene fluoride polymer layer or a 3-5- μ m polyoxyethylene derivative layer. The separator is manufactured by forming a porous polyethylene film, applying an aramid resin on a side of the film, making the aramid resin layer porous, and applying a vinylidene fluoride polymer or a precursor solution containing ethylene oxide polymers, polymerization

initiators, and electrolytic solns. on the other side of the film, followed by 3-dimensional thermal or UV crosslinking. The separator shows reduced thickness and improved mech. strength.

ST nonaq electrolyte **battery separator** porous laminate; aramid resin polyethylene polyoxyethylene laminate **battery separator**; vinylidene fluoride polymer porous polyethylene aramid resin **battery separator**

IT Polyamides, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(aromatic; laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)

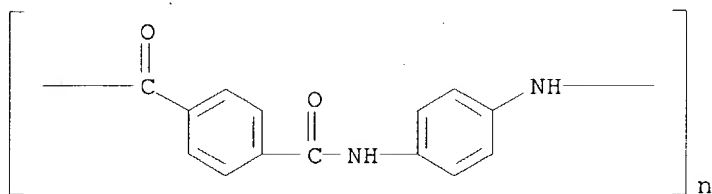
IT Fluoropolymers, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(gel; laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel

- or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT Fluoro rubber
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(hexafluoropropene-vinylidene fluoride, Kynar Flex 2801; laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT Secondary **batteries**
Secondary **battery separators**
(laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT Polyesters, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT **24938-64-5P, p-Phenylenediamine-terephthaloyl**
chloride copolymer, sru 26125-61-1P, **p-Phenylenediamine-terephthaloyl chloride copolymer**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary **battery**)
- IT 9002-88-4, Polyethylene
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT 9003-11-6, Ethylene oxide-propylene oxide copolymer 9010-75-7
9010-89-3, Adipic acid-diethylene glycol copolymer 25036-49-1, Adipic acid-diethylene glycol copolymer, sru 25322-68-3, Polyethylene oxide 35064-83-6, Perfluoromethyl vinyl ether-vinylidene fluoride copolymer
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(rubber; laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary battery)
- IT **24938-64-5P, p-Phenylenediamine-terephthaloyl**
chloride copolymer, sru
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(laminated **battery separator** using porous aramid resin, porous polyethylene, and vinylidene fluoride polymer gel or polyoxyethylene gel for nonaq. electrolyte secondary **battery**)
- RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 14 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:193249 HCAPLUS
 DN 136:234652
 ED Entered STN: 17 Mar 2002
 TI **Polymeric material** having p-
phenylene unit, **battery separator** and gasket
 using the material, and secondary lithium battery
 IN Yoshimura, Seiji; Nakajima, Hiroshi; Kamino, Maruo; Nishiguchi, Nobuhiro;
 Imanishi, Masahiro
 PA Sanyo Electric Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS H01M002-08; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002075317	A2	20020315	JP 2000-255179	20000825
	US 2002051910	A1	20020502	US 2001-934537	20010823
PRAI	JP 2000-255179	A	20000825		

AB The **polymeric material** for **battery separators** and gaskets has a repeating unit containing p-
phenylene unit linked to O, CH₂, isopropylidene, CO, carbonyldioxy, carboxylic anhydride, amide, ureylene, and/or SO₂. The Li **battery** having a **separator** or a gasket made of the above **polymeric material** shows improved heat resistance to show less decrease of discharge capacity after reflowing for soldering.
 ST lithium **battery separator** gasket heat resistance phenylene polymer
 IT Polyamides, uses
 Polyanhydrides
 Polycarbonates, uses
 Polyesters, uses
 Polyureas
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (arylenealkylene-; **polymeric material** having p-**phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
 IT Secondary batteries

applicant

- (lithium; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polyethers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polyanhydride-, aromatic; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polysulfones, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polyether-, aromatic, arylenealkylene-; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polyanhydrides
 Polyketones
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polyether-, aromatic; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polyethers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polyketone-, aromatic; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polythioethers
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polyketone-; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Gaskets
 Secondary **battery separators**
 (**polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Poly(arylenealkylenes)
 Polyamides, uses
 Polyanhydrides
 Polycarbonates, uses
 Polyketones
 Polyoxyarylenes
 Polysulfones, uses
 Polyureas
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (**polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polysulfones, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polyoxyarylene-; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)

- separator** and gasket used in secondary lithium battery)
- IT Polyethers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polysulfone-, aromatic, arylenealkylene-; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polyoxyarylenes
 Polythioethers
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polysulfone-; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT Polyketones
 Polysulfones, uses
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (polythioether-; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide 132843-44-8, Lithium bis(pentafluoroethanesulfonyl)imide
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; **polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT 132404-42-3, Lithium tris(trifluoromethanesulfonyl)methide
 RL: DEV (Device component use); USES (Uses)
 (**polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT 24936-68-3, uses 24991-08-0, Poly(imino-1,4-phenylenecarbonyl) 25135-51-7 25667-40-7, Poly(oxy-1,4-phenylene) 25667-42-9 25667-72-5 26099-74-1 26659-32-5 26913-45-1, Poly(oxycarbonyl-1,4-phenylenecarbonyl) 27028-97-3 27380-27-4 27880-39-3, Poly(1,4-phenylenemethylene) 28932-43-6, Poly(oxycarbonyloxy-1,4-phenylene) 29991-94-4 31694-16-3 31833-61-1, Poly(sulfonyl-1,4-phenylene) 32033-80-0, Poly(1,4-phenylenecarbonyl) 38797-87-4 40042-87-3, Poly[1,4-phenylene(1-methylethylidene)] 53729-03-6, Poly(iminocarbonylimino-1,4-phenylene) 60015-03-4 60015-05-6 74970-25-5 403694-11-1 403694-12-2
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (**polymeric material** having **p-phenylene** unit for **battery separator** and gasket used in secondary lithium battery)
- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran, uses 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 629-14-1, 1,2-Diethoxyethane 646-06-0, 1,3-Dioxolane 872-36-6,

Vinylene carbonate 4437-85-8, 1,2-Butylene carbonate 5137-45-1,
1,2-Ethoxymethoxyethane

RL: DEV (Device component use); USES (Uses)

(solvent; **polymeric material** having p-
phenylene unit for **battery separator** and
gasket used in secondary lithium battery)

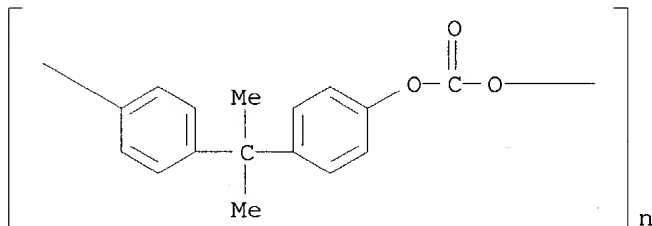
IT 24936-68-3, uses 24991-08-0, Poly(imino-1,4-
phenylenecarbonyl) 25135-51-7 25667-40-7,
Poly(oxy-1,4-phenylene) 25667-42-9 25667-72-5
26099-74-1 26659-32-5 26913-45-1,
Poly(oxycarbonyl-1,4-phenylenecarbonyl) 27028-97-3
27380-27-4 27880-39-3, Poly(1,4-phenylenemethylene)
28932-43-6, Poly(oxycarbonyloxy-1,4-phenylene) 29991-94-4
31694-16-3 31833-61-1, Poly(sulfonyl-1,4-phenylene)
32033-80-0, Poly(1,4-phenylenecarbonyl) 38797-87-4
40042-87-3, Poly[1,4-phenylene(1-methylethylidene)]
53729-03-6, Poly(iminocarbonylimino-1,4-phenylene)
60015-03-4 60015-05-6 74970-25-5
403694-11-1 403694-12-2

RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)

(**polymeric material** having p-
phenylene unit for **battery separator** and
gasket used in secondary lithium **battery**)

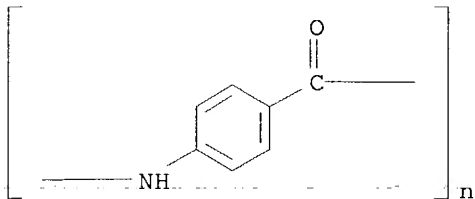
RN 24936-68-3 HCAPLUS

CN Poly[oxycarbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (9CI)
(CA INDEX NAME)



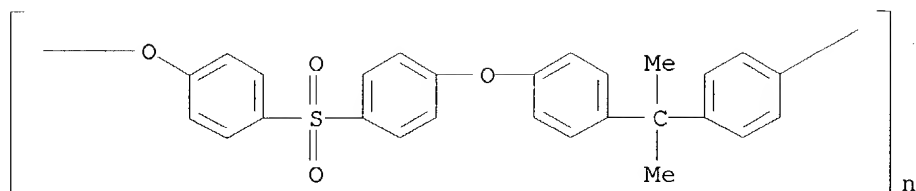
RN 24991-08-0 HCAPLUS

CN Poly(imino-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)

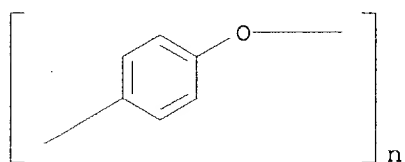


RN 25135-51-7 HCAPLUS

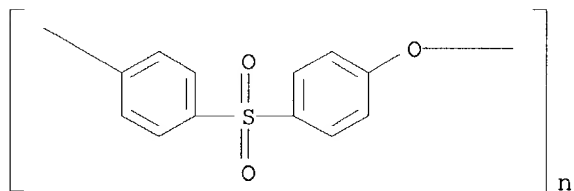
CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-
methylethylidene)-1,4-phenylene] (9CI) (CA INDEX NAME)



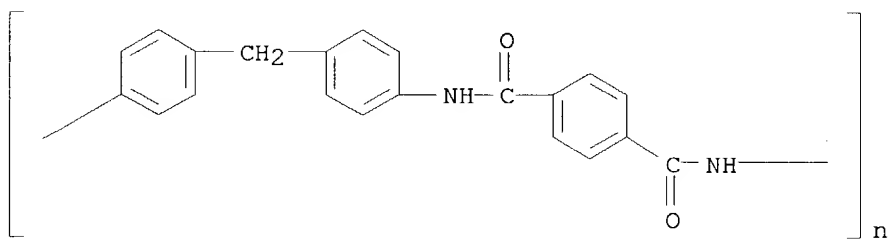
RN 25667-40-7 HCAPLUS
CN Poly(oxy-1,4-phenylene) (9CI) (CA INDEX NAME)



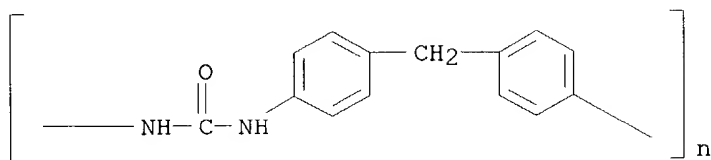
RN 25667-42-9 HCAPLUS
CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



RN 25667-72-5 HCAPLUS
CN Poly(iminocarbonyl-1,4-phenylenecarbonylimino-1,4-phenylenemethylene-1,4-phenylene) (9CI) (CA INDEX NAME)

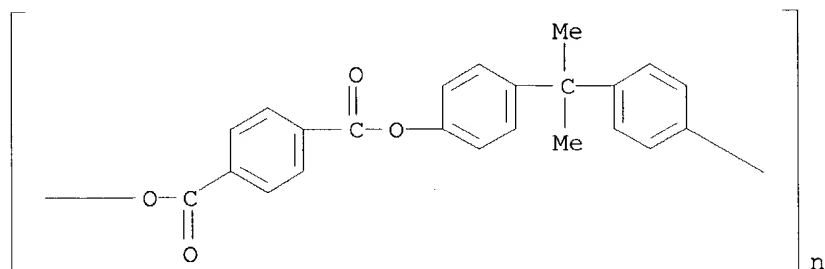


RN 26099-74-1 HCAPLUS
CN Poly(iminocarbonylimino-1,4-phenylenemethylene-1,4-phenylene) (9CI) (CA INDEX NAME)



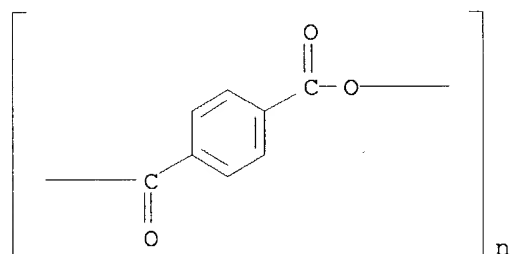
RN 26659-32-5 HCAPLUS

CN Poly[oxycarbonyl-1,4-phenylenecarbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (9CI) (CA INDEX NAME)



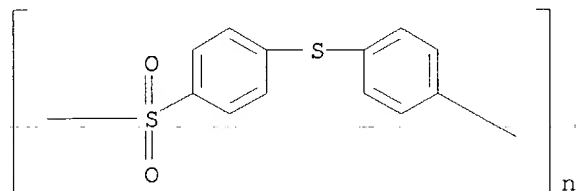
RN 26913-45-1 HCAPLUS

CN Poly(oxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



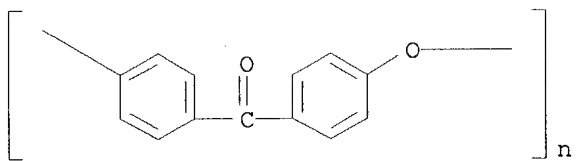
RN 27028-97-3 HCAPLUS

CN Poly(sulfonyl-1,4-phenylenethio-1,4-phenylene) (9CI) (CA INDEX NAME)

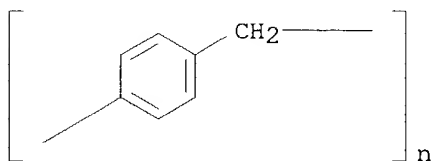


RN 27380-27-4 HCAPLUS

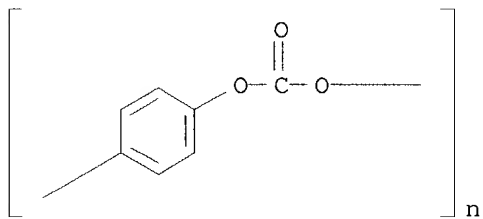
CN Poly(oxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



RN 27880-39-3 HCAPLUS
CN Poly(1,4-phenylenemethylene) (9CI) (CA INDEX NAME)



RN 28932-43-6 HCAPLUS
CN Poly(oxycarbonyloxy-1,4-phenylene) (9CI) (CA INDEX NAME)

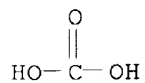


RN 29991-94-4 HCAPLUS
CN Carbonic acid, polymer with 1,4-benzenediol (9CI) (CA INDEX NAME)

CM 1

CRN 463-79-6

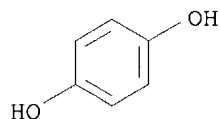
CMF C H2 O3



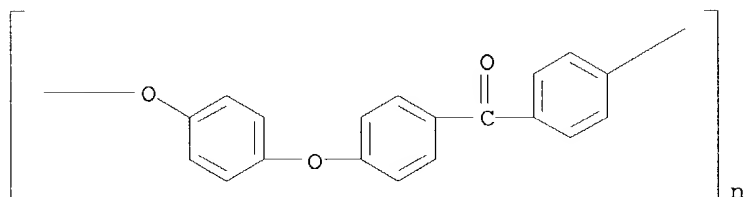
CM 2

CRN 123-31-9

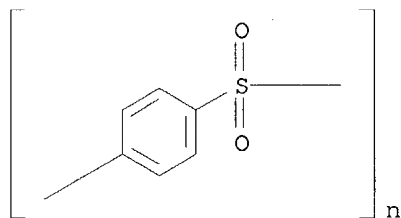
CMF C6 H6 O2



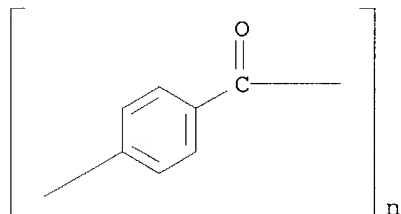
RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



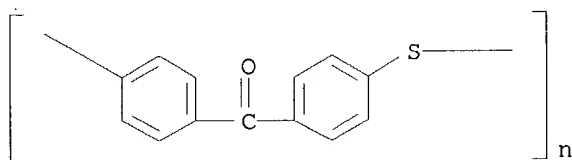
RN 31833-61-1 HCAPLUS
 CN Poly(sulfonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



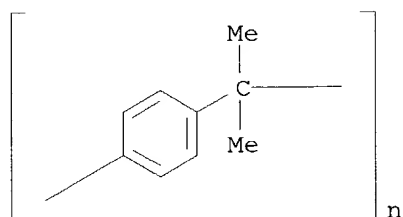
RN 32033-80-0 HCAPLUS
 CN Poly(1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



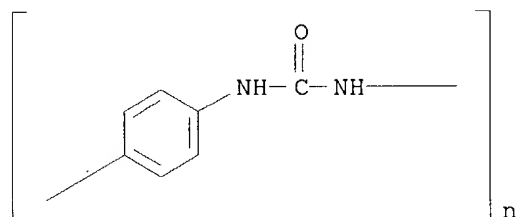
RN 38797-87-4 HCAPLUS
 CN Poly(thio-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



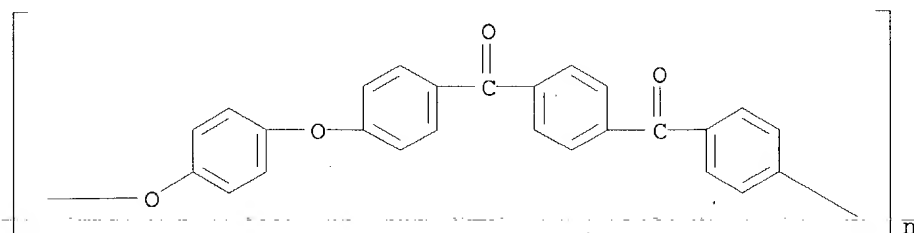
RN 40042-87-3 HCAPLUS
CN Poly[1,4-phenylene(1-methylethylidene)] (9CI) (CA INDEX NAME)



RN 53729-03-6 HCAPLUS
CN Poly(iminocarbonylimino-1,4-phenylene) (9CI) (CA INDEX NAME)

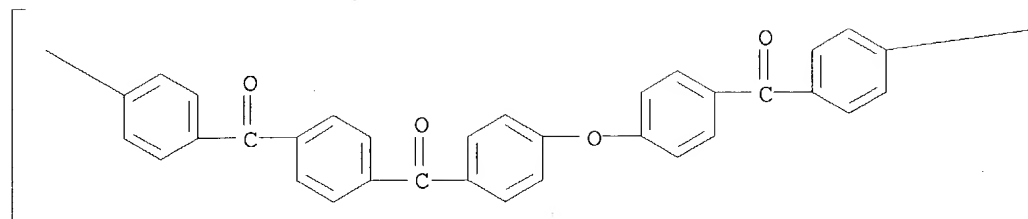


RN 60015-03-4 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

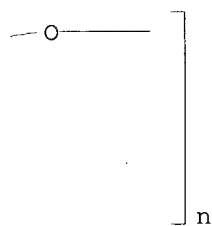


RN 60015-05-6 HCAPLUS
CN Poly(oxy-1,4-phenylenecarbonyl-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

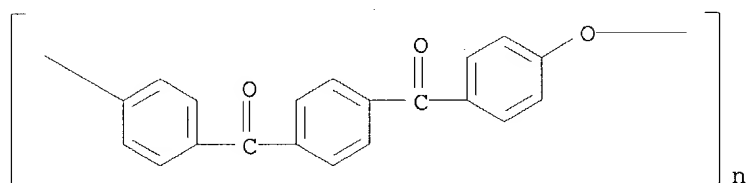
PAGE 1-A



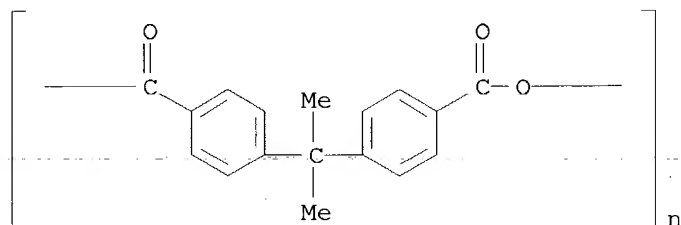
PAGE 1-B



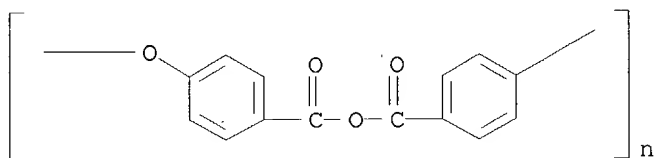
RN 74970-25-5 HCAPLUS
CN Poly(oxy-1,4-phenylenecarbonyl-1,4-phenylenecarbonyl-1,4-phenylene) (9CI)
(CA INDEX NAME)



RN 403694-11-1 HCAPLUS
CN Poly[oxycarbonyl-1,4-phenylene(1-methylethylidene)-1,4-phenylenecarbonyl]
(9CI) (CA INDEX NAME)



RN 403694-12-2 HCAPLUS
CN Poly(oxy-1,4-phenylenecarbonyloxycarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



L20 ANSWER 15 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:193246 HCAPLUS
 DN 136:234650
 ED Entered STN: 17 Mar 2002
 TI Sealed battery using inorganic fiber-reinforced heat-resistant polymer gasket
 IN Furuhashi, Toshiaki; Hirota, Tetsutoshi; Inamine, Shoichi; Minamida, Yoshitaka; Nishiguchi, Nobuhiro
 PA Sanyo Electric Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-08
 ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002075302	A2	20020315	JP 2000-263646	20000831
PRAI	JP 2000-263646		20000831		

AB In the battery, a housing can is sealed with a lid via an elec. insulating gasket containing heat-resistant polymers and 10-20- μ m inorg. fibers. The battery shows improved heat resistance and no leakage after reflowing for mounting on printed circuit boards.

ST sealed battery inorg fiber reinforced polymer gasket; heat resistance gasket fiber reinforced plastic sealed battery

IT Reinforced plastics
 RL: TEM (Technical or engineered material use); USES (Uses)
 (fiber-reinforced; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Secondary batteries
 (lithium; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Polyketones
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyether-; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Polyethers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyketone-; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Synthetic fibers
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (potassium titanate, fiber, reinforcer; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Gaskets
(sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Polythiophenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT Secondary batteries
(sealed; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

IT 12673-69-7, Potassium titanate
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(fiber, reinforcer; sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket)

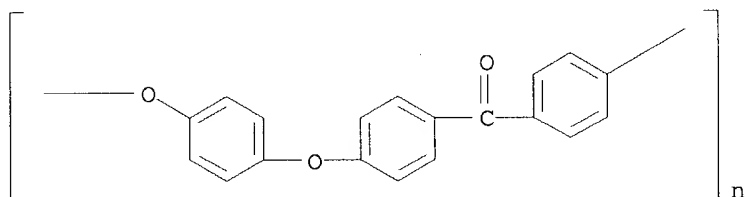
IT **31694-16-3, PEEK**
RL: TEM (Technical or engineered material use); USES (Uses)
(potassium titanate fiber-reinforced; sealed **battery** using inorg. fiber-reinforced heat-resistant polymer **gasket**)

IT 25212-74-2, PPS
RL: TEM (Technical or engineered material use); USES (Uses)
(sealed battery using inorg. fiber-reinforced heat-resistant polymer gasket).

IT **31694-16-3, PEEK**
RL: TEM (Technical or engineered material use); USES (Uses)
(potassium titanate fiber-reinforced; sealed **battery** using inorg. fiber-reinforced heat-resistant polymer **gasket**)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



L20 ANSWER 16 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:10177 HCAPLUS

DN 136:56453

ED Entered STN: 04 Jan 2002

TI Porous film **separator** for lithium secondary **battery**

IN Hoshida, Daijiro; Takahashi, Tsutomu; Yamada, Takeshi; Shinohara, Yasuo

PA Sumitomo Chemical Company, Limited, Japan

SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW

DT Patent

LA English

IC ICM H01M002-16
ICS B01D067-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 37

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1168469	A2	20020102	EP 2001-114390	20010613
	EP 1168469	A3	20030806		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002069221	A2	20020308	JP 2001-178251	20010613
	US 2002034689	A1	20020321	US 2001-879078	20010613
	CN 1331496	A	20020116	CN 2001-124839	20010614
PRAI	JP 2000-178006	A	20000614		
AB	Provided is a porous film obtained by melt-kneading a high mol. weight of not less than 5×10^5 , a thermoplastic resin having a weight-average mol. weight of not more than 2×10^4 and fine particles, molding the kneaded matter into a sheet, and then stretching the sheet. The porous film can be easily and simply prepared, and has a high piercing strength, and hence can be advantageously used as a separator for a battery , especially a lithium secondary battery.				
ST	lithium secondary battery separator porous film				
IT	Pore (diameter; porous film separator for lithium secondary battery)				
IT	Secondary batteries (lithium; porous film separator for lithium secondary battery)				
IT	Kneading (melt-; porous film separator for lithium secondary battery)				
IT	Contraction (mechanical) Electric resistance Secondary battery separators (porous film separator for lithium secondary battery)				
IT	Polyolefins RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process) (porous film separator for lithium secondary battery)				
IT	Polyamide fibers, uses RL: TEM (Technical or engineered material use); USES (Uses) (porous film separator for lithium secondary battery)				
IT	Plastics, processes RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process) (thermoplastics; porous film separator for lithium secondary battery)				
IT	100-20-9, Terephthalic acid dichloride RL: MOA (Modifier or additive use); USES (Uses) (porous film separator for lithium secondary battery)				
IT	471-34-1, Calcium carbonate, uses 10043-52-4, Calcium chloride, uses RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses) (porous film separator for lithium secondary battery)				
IT	9002-88-4, Polyethylene 25035-37-4, Poly(p-phenylene terephthalamide)				

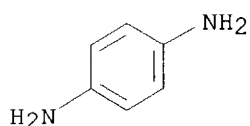
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(porous film **separator** for lithium secondary **battery**)

IT **25035-37-4**, Poly(**p-phenylene** terephthalamide)
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(porous film **separator** for lithium secondary **battery**)

RN 25035-37-4 HCAPLUS
CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

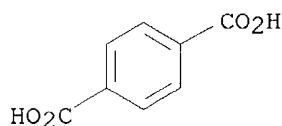
CM 1

CRN 106-50-3
CMF C6 H8 N2



CM 2

CRN 100-21-0
CMF C8 H6 O4



L20 ANSWER 17 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:710153 HCAPLUS
DN 135:245044
ED Entered STN: 28 Sep 2001
TI Secondary lithium batteries
IN Nishida, Hiroki; Takahashi, Tsutomu; Shinohara, Yasuo
PA Sumitomo Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M010-40

ICS H01M002-16; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001266949	A2	20010928	JP 2000-75751	20000317
PRAI	JP 2000-75751		20000317		

AB The **batteries** use **separators** having a thin heat resistant porous shut down layer facing the anode. The layer is preferably a heat resistant resin having a min. O concentration index (min. concentration for sustained burning) ≥ 20 at $\geq 100^\circ$, and the battery cathode is a Li transition metal oxide, which has a releasable O content $\leq 15\%$ when thermally decomposed in charged state.

ST secondary lithium **battery separator** shut down layer; cathode oxygen content secondary lithium battery

IT Secondary **battery separators**
(**separators** containing shut down heat resistant resin layer on anode side in secondary lithium batteries)

IT 52627-24-4, Cobalt lithium oxide
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(cobalt lithium oxide with controlled releasable oxygen content for cathodes in secondary lithium batteries)

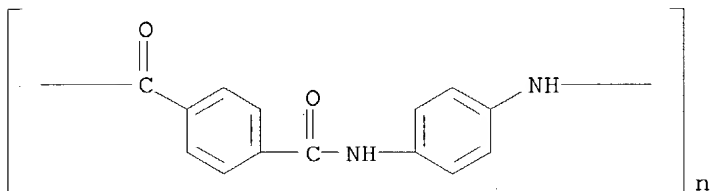
IT 9002-88-4, Polyethylene
RL: DEV (Device component use); USES (Uses)
(porous polyethylene separators containing shut down heat resistant resin layer on anode side in secondary lithium batteries)

IT **24938-64-5**, Poly(**p-phenylene** terephthalamide)
25035-37-4, Poly(**p-phenylene** terephthalamide)
RL: DEV (Device component use); USES (Uses)
(**separators** containing shut down heat resistant resin layer on anode side in secondary lithium **batteries**)

IT **24938-64-5**, Poly(**p-phenylene** terephthalamide)
25035-37-4, Poly(**p-phenylene** terephthalamide)
RL: DEV (Device component use); USES (Uses)
(**separators** containing shut down heat resistant resin layer on anode side in secondary lithium **batteries**)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



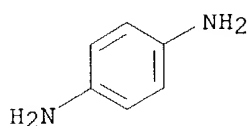
RN 25035-37-4 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

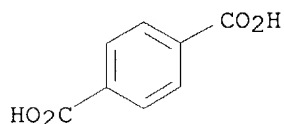
CRN 106-50-3

CMF C6 H8 N2



CM 2

CRN 100-21-0
CMF C8 H6 O4



L20 ANSWER 18 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:710084 HCAPLUS
DN 135:275327
ED Entered STN: 28 Sep 2001
TI Separator containing para-aromatic polyamide fibers for secondary alkaline battery
IN Takahashi, Keisuke; Imafuji, Yoshihiko; Takase, Toshiaki; Tanaka, Masanao
PA Japan Vilene Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-16
ICS H01M006-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 40
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001266832	A2	20010928	JP 2000-82897	20000323
PRAI	JP 2000-82897		20000323		

AB The separator has a fiber sheet containing para-aromatic polyamide fibers with tensile strength ≥ 18 cN/dtex, and the average diameter of the fibers forming the fiber sheet is 8-13 μm . The separator has high tear and oxidation resistance, and the **battery** using the **separator** has long life.

ST para arom polyamide fiber **separator** alk **battery**;
tensile strength oxidn resistance polyamide fiber **separator**
battery

IT Polyamides, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(fiber, bicomponent with nylon-6, sheath-core; separator containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline battery)

IT Polyamides, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(fiber, bicomponent with nylon-6,6, sheath-core; separator containing

para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline battery)

IT Polyamide fibers, uses
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (p-phenylenediamine-terephthalic acid; separator containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline battery)

IT Nonwoven fabrics
 Secondary **battery separators**
 (separator containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline battery)

IT 32131-17-2, Nylon 6,6, uses
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (fiber, bicomponent with nylon-6, sheath-core; separator containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline battery)

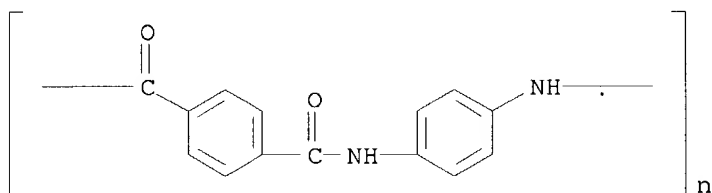
IT 25038-54-4, nylon 6, uses
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (fiber, bicomponent with nylon-6,6, sheath-core; separator containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline battery)

IT **24938-64-5**
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (fiber; **separator** containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline **battery**)

IT **24938-64-5**
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (fiber; **separator** containing para-aromatic polyamide fibers with high tensile strength and oxidation resistance for alkaline **battery**)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 19 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:614280 HCAPLUS

DN 135:168869

ED Entered STN: 23 Aug 2001

TI Protective coating for separators for electrochemical cells

IN Ying, Qicong; Carlson, Steven A.; Skotheim, Terje A.

PA Moltech Corporation, USA

SO U.S., 29 pp., Cont.-in-part of U.S. 6,183,901.

CODEN: USXXAM

DT Patent

LA English

IC ICM H01M002-14

NCL 429129000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6277514	B1	20010821	US 1999-447901	19991123
	US 6194098	B1	20010227	US 1998-215029	19981217
	US 6183901	B1	20010206	US 1999-399967	19990921
	WO 2000036670	A1	20000622	WO 1999-US30136	19991216
	W:				
	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	WO 2000036671	A1	20000622	WO 1999-US30214	19991216
	W:				
	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1149425	A1	20011031	EP 1999-967395	19991216
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	EP 1151486	A1	20011107	EP 1999-966420	19991216
	EP 1151486	B1	20030521		
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002532852	T2	20021002	JP 2000-588826	19991216
	US 2001053475	A1	20011220	US 2001-898884	20010702
PRAI	US 1998-215029	A2	19981217		
	US 1999-399967	A2	19990921		
	US 1999-447901	A2	19991123		
	WO 1999-US30136	W	19991216		
	WO 1999-US30214	W	19991216		

AB This invention pertains to separators for use in electrochem. cells which comprise at least one microporous pseudo-boehmite layer, which separator is in contact with at least one protective coating layer positioned on the anode-facing side of the separator opposite from the cathode active layer in the cell; electrolyte elements comprising such separators; elec. current producing cells comprising such separators; and methods of making such separators, electrolyte elements and cells.

ST **battery separator** pseudoboehmite protective coating

IT Synthetic rubber, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(acrylonitrile-butadiene-methacrylic acid; protective coating for separators for electrochem. cells)

IT Synthetic rubber, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(acrylonitrile-butadiene-styrene, carboxylated; protective coating for separators for electrochem. cells)

- IT Glass, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(ion conducting; protective coating for separators for electrochem. cells)
- IT Coating process
Conducting polymers
Secondary **batteries**
Secondary **battery separators**
(protective coating for **separators** for electrochem. cells)
- IT ABS rubber
Acrylic polymers, uses
Nitrile rubber, uses
Polyacenes
Polyacetylenes, uses
Polyolefins
Polyurethanes, uses
Styrene-butadiene rubber, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(protective coating for separators for electrochem. cells)
- IT 9003-56-9
RL: TEM (Technical or engineered material use); USES (Uses)
(abs rubber, protective coating for separators for electrochem. cells)
- IT 9003-18-3
RL: TEM (Technical or engineered material use); USES (Uses)
(nitrile rubber, protective coating for separators for electrochem. cells)
- IT 110-71-4 646-06-0, 1,3-Dioxolane 1318-23-6, Pseudoboehmite
7704-34-9, Sulfur, uses
RL: DEV (Device component use); USES (Uses)
(protective coating for separators for electrochem. cells)
- IT **64401-02-1** 221629-51-2, CN 984
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(protective coating for separators for electrochem. cells)
- IT 9003-19-4, Polyvinyl ether 9003-39-8, polyvinylpyrrolidone 9003-63-8, Poly(butyl methacrylate) 10377-52-3, Lithium phosphate 12627-14-4, Lithium silicate 12676-27-6 25067-58-7, Polyacetylene 25190-62-9, Poly(**p-phenylene**) 28774-98-3, Poly(naphthalene-2,6-diyl) 37220-89-6, Lithium aluminate 39302-37-9, Lithium titanium oxide 82451-56-7, Polyazulene 96638-49-2, Poly(phenylenevinylene) 114239-80-4, Poly(perinaphthalene) 146701-60-2, CAB-O-SIL TS-530 152747-89-2, Lanthanum lithium oxide 184905-46-2, Lithium nitrogen phosphorus oxide 211431-21-9, Escure kto 236388-73-1, Lithium silicide sulfide 236388-74-2, Lithium boride sulfide 236388-75-3, Aluminum lithium sulfide 236388-76-4, Lithium phosphide sulfide 342379-43-5, Germanium lithium sulfide
RL: TEM (Technical or engineered material use); USES (Uses)
(protective coating for separators for electrochem. cells)
- IT 9003-55-8
RL: TEM (Technical or engineered material use); USES (Uses)
(styrene-butadiene rubber, protective coating for separators for electrochem. cells)

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anani; US 5549989 1996 HCAPLUS
- (2) Anderson; US 5326391 1994 HCAPLUS
- (3) Anon; EP 0524626 A1 1993 HCAPLUS
- (4) Anon; EP 0600718 A2 1994 HCAPLUS

- (5) Anon; EP 0814520 A2 1997 HCAPLUS
- (6) Anon; EP 0836238 A1 1998 HCAPLUS
- (7) Anon; EP 0875950 A2 1998 HCAPLUS
- (8) Anon; WO 9933125 1999 HCAPLUS
- (9) Armand; US 4739018 1988 HCAPLUS
- (10) Bagley; US 5194341 1993 HCAPLUS
- (11) Bates; US 5314765 1994 HCAPLUS
- (12) Bennett; US 4451550 1984 HCAPLUS
- (13) Chang; US 4143214 1979 HCAPLUS
- (14) Chang; US 4152491 1979 HCAPLUS
- (15) Cope; US 3779768 1973 HCAPLUS
- (16) de Jonghe; US 4833048 1989 HCAPLUS
- (17) de Jonghe; US 4917974 1990 HCAPLUS
- (18) Delnick; US 5882721 1999 HCAPLUS
- (19) Dyer; US 4894301 1990 HCAPLUS
- (20) Ehrenberg; US 5468574 1995 HCAPLUS
- (21) Ehrenberg; US 5679482 1997 HCAPLUS
- (22) Gozdz; US 5418091 1995 HCAPLUS
- (23) Kawakami; US 5824434 1998 HCAPLUS
- (24) Lee; US 5538812 1996 HCAPLUS
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- (26) Matsumoto; US 5585039 1996 HCAPLUS
- (27) Matsumoto; US 5609795 1997 HCAPLUS
- (28) Morigaki; US 5597659 1997
- (29) Morigaki; US 5691005 1997 HCAPLUS
- (30) Okamoto; US 5441831 1995 HCAPLUS
- (31) Oyama; US 5324599 1994 HCAPLUS
- (32) Papetti; US 4064116 1977
- (33) Perichaud; US 4664991 1987 HCAPLUS
- (34) Priest; US 3143418 1964
- (35) Skotheim; US 5362493 1994 HCAPLUS
- (36) Skotheim; US 5529860 1996 HCAPLUS
- (37) Skotheim; US 5601947 1997 HCAPLUS
- (38) Skotheim; US 5648187 1997 HCAPLUS
- (39) Skotheim; US 5690702 1997 HCAPLUS
- (40) Suzuki; US 5463178 1995 HCAPLUS
- (41) Visco; US 5162175 1992
- (42) Visco; US 5516598 1996 HCAPLUS

IT **64401-02-1**

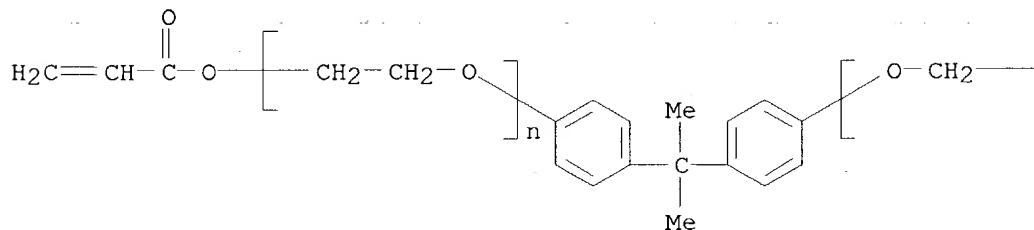
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(protective coating for separators for electrochem. cells)

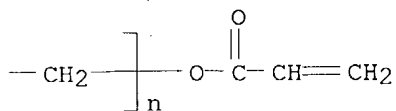
RN 64401-02-1 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α, α' -[(1-methylethylidene)di-4,1-phenylene]bis[ω -[(1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L20 ANSWER 20 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:526359 HCAPLUS

DN 135:95194

ED Entered STN: 20 Jul 2001

TI Polymeric mesoporous separator elements for laminated lithium-ion rechargeable batteries

IN Dupasquier, Aurelien; Tarascon, Jean-marie

PA Valence Technology, Inc., Fr.

SO U.S. Pat. Appl. Publ., 9 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM H01M002-16

ICS B29C065-00

NCL 429254000

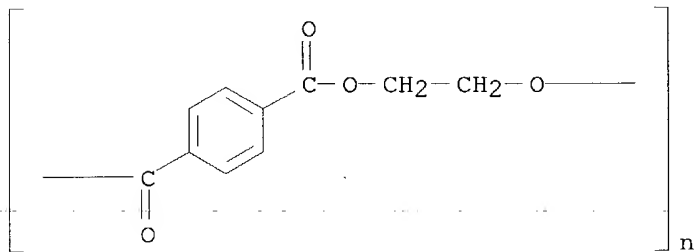
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001008734	A1	20010719	US 1998-190353	19981112
	US 6537703	B2	20030325		
	US 6537334	B1	20030325	US 2000-689170	20001012
PRAI	US 1998-190353	A3	19981112		

AB A mesoporous polymeric membrane for use as an ionically-conductive inter-electrode separator in a rechargeable battery cell is prepared from a coatable composition comprising a **polymeric material**, a volatile fluid solvent for the **polymeric material**, and a second fluid miscible with and of lesser volatility than the solvent, the second fluid being a nonsolvent exhibiting no significant solvency for the **polymeric material**. A layer is cast from the composition to form a layer which is gelled and solidified to a self-supporting membrane by volatilizing the solvent and nonsolvent coating vehicle fluids under conditions in which the solvent volatilizes at a rate substantially faster than that of the nonsolvent. As a result the **polymeric material** initially gels in the more nonsolvent-predominant regions of the layer and isolates the nonsolvent as droplets substantially uniformly distributed throughout a matrix of **polymeric material**. The nonsolvent is subsequently volatilized from the droplets to yield a like distribution of mesopore voids throughout the membrane matrix. The porous membrane is capable of absorbing significant amts. of electrolyte solution to provide suitable ionic conductivity for use in rechargeable battery cells. The addition of inert particulate filler to the coating composition provides further strength in the body of the membrane and, due to preferential accumulation of particles in the dispersed nonsolvent droplets, provides particulate support within the membrane mesopores which prevents collapse of the voids at cell fabrication laminating temps. and thus maintains electrolyte absorption capability.

ST lithium battery polymer mesoporous separator
 IT Secondary batteries
 (lithium; polymeric mesoporous separator elements for laminated
 lithium-ion rechargeable batteries)
 IT Absorption
 Battery electrolytes
 Secondary battery separators
 (polymeric mesoporous separator elements for laminated lithium-ion
 rechargeable batteries)
 IT Polyesters, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polymeric mesoporous separator elements for laminated lithium-ion
 rechargeable batteries)
 IT 7631-86-9, Fumed silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; polymeric mesoporous separator elements for laminated
 lithium-ion rechargeable batteries)
 IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 9011-17-0,
 Hexafluoropropylene-vinylidene fluoride copolymer 12057-17-9, lithium
 manganese oxide LiMn_2O_4 21324-40-3, Lithium hexafluorophosphate
 RL: DEV (Device component use); USES (Uses)
 (polymeric mesoporous separator elements for laminated lithium-ion
 rechargeable batteries)
 IT 7440-44-0, Carbon, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (polymeric mesoporous separator elements for laminated lithium-ion
 rechargeable batteries)
 IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropanol,
 uses 67-64-1, Acetone, uses **25038-59-9**, Polyethylene
 terephthalate, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polymeric mesoporous **separator** elements for laminated
 lithium-ion rechargeable **batteries**)
 IT **25038-59-9**, Polyethylene terephthalate, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polymeric mesoporous **separator** elements for laminated
 lithium-ion rechargeable **batteries**)
 RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX
 NAME)



L20 ANSWER 21 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:521181 HCAPLUS
 DN 135:94034
 ED Entered STN: 19 Jul 2001

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

TI Resin composition for nonaqueous electrolyte electric battery sealing gasket, gasket and nonaqueous electrolyte electric battery

IN Moritomi, Satoru

PA Sumitomo Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-08

ICS C08L067-00; C08L069-00; C08L071-12; C08L077-00; C08L081-00;
C09K003-10

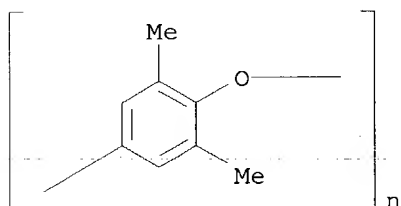
CC 42-11 (Coatings, Inks, and Related Products)

Section cross-reference(s): 52

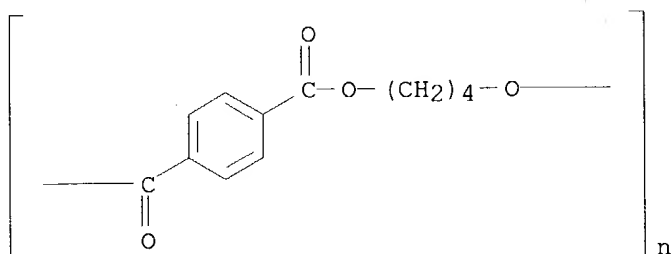
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001196038	A2	20010719	JP 2000-4542	20000113
PRAI	JP 2000-4542		20000113		
AB	The composition comprises ≥ 1 of a thermoplastic [poly(2,6-dimethyl-1,4-phenylene ether)]; a polyamide (nylon 66); and a compatibilizer (maleic anhydride), wherein the amount of each component satisfies with given condition.				
ST	elec battery sealing gasket polyoxyphenylene; maleic anhydride compatibilizer polyamide blend gasket				
IT	Synthetic rubber, uses RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (acrylonitrile-ethylene-propene-styrene, graft; resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)				
IT	Polysulfones, uses RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (polyether-; resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)				
IT	Polyethers, uses RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (polysulfone-; resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)				
IT	Electrolytes Gaskets Polymer blend compatibilizers (resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)				
IT	Polyamides, uses Polycarbonates, uses Polyesters, uses Polymer blends Polyoxyphenylenes Polysulfones, uses Polythiophenylenes RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)				
IT	Primary batteries (sealed; resin composition for nonaq. electrolyte elec. battery sealing				

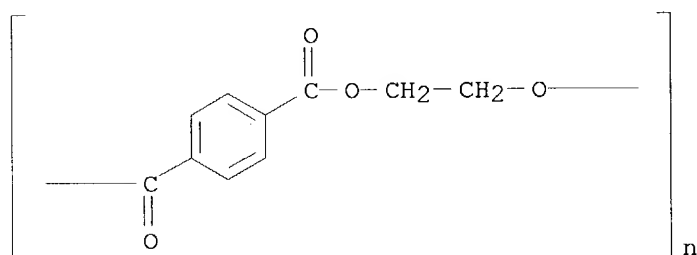
- gasket, gasket and nonaq. electrolyte elec. battery)
- IT Plastics, uses
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (thermoplastics; resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)
- IT 108-31-6, Maleic anhydride, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (compatibilizer; resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)
- IT 9010-79-1, Ethylene-propylene copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)
- IT 9003-07-0, Polypropylene **24938-67-8**, Poly(2,6-dimethyl-1,4-phenylene ether) **24968-12-5**, 1,4-Butanediol-terephthalic acid copolymer, sru **25038-59-9**, PET polymer, uses **25134-01-4**, 2,6-Xylenol homopolymer **26062-94-2**, 1,4-Butanediol-terephthalic acid copolymer 32131-17-2, nylon 66, uses 106565-43-9, Ethylene-propylene block copolymer
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (resin composition for nonaq. electrolyte elec. **battery** sealing **gasket, gasket** and nonaq. electrolyte elec. **battery**)
- IT 110726-80-2, Acrylonitrile-ethylene-propene-styrene graft copolymer
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (rubber; resin composition for nonaq. electrolyte elec. battery sealing gasket, gasket and nonaq. electrolyte elec. battery)
- IT **24938-67-8**, Poly(2,6-dimethyl-1,4-phenylene ether)
24968-12-5, 1,4-Butanediol-terephthalic acid copolymer, sru **25038-59-9**, PET polymer, uses **25134-01-4**, 2,6-Xylenol homopolymer **26062-94-2**, 1,4-Butanediol-terephthalic acid copolymer
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (resin composition for nonaq. electrolyte elec. **battery** sealing **gasket, gasket** and nonaq. electrolyte elec. **battery**)
- RN 24938-67-8 HCAPLUS
 CN Poly[oxy(2,6-dimethyl-1,4-phenylene)] (9CI) (CA INDEX NAME)



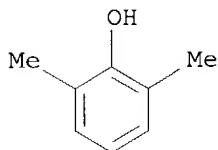
- RN 24968-12-5 HCAPLUS
 CN Poly(oxy-1,4-butanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



RN 25134-01-4 HCAPLUS
 CN Phenol, 2,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 576-26-1
 CMF C8 H10 O

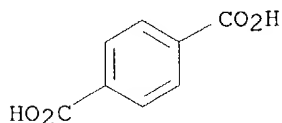


RN 26062-94-2 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)
 CM 1
 CRN 110-63-4
 CMF C4 H10 O2

HO-(CH₂)₄-OH

CM 2

CRN 100-21-0
CMF C8 H6 O4



L20 ANSWER 22 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:414762 HCAPLUS
DN 135:7807
ED Entered STN: 08 Jun 2001
TI Alkaline electric **batteries** with multilayered nonwoven fabric
separators
IN Yoda, Kiyoto
PA Toshiba Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-16
ICS H01M010-28
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 40

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001155707	A2	20010608	JP 1999-332951	19991124
PRAI	JP 1999-332951		19991124		

AB The **separators** for the title **batteries**, comprising a cathode terminal can containing cathode active mass, a separator, and anode gel, consists of ≥ 2 layers of nonwoven fabric having (A) gas permeability $6 + 103 - 1.0 + 104$ mL/min.cm², which is indicated by amount of permeable air at $20 \pm 2^\circ$ and humidity $65 \pm 2\%$ under pressure difference of 100 mmH₂O or (B) total pore volume (determined with mercury porosimeter) 0.8-2.0 cm³/g. Preferably, the nonwoven fabrics contain ≥ 1 fibers selected from poly(vinyl alc.) fibers, cellulose fibers, and aromatic polyamide fibers. The batteries have high reliability and long service life.

ST alk **battery** multilayered nonwoven fabric **separator**;
gas permeability controlled nonwoven fabric separator; porosity controlled nonwoven fabric **battery separator**

IT Polyamide fibers, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(aramid; multilayered nonwoven fabric separators having certain porosity or gas permeability in alkaline batteries for long service life)

IT Permeability
(gas; multilayered nonwoven fabric separators having certain porosity or gas permeability in alkaline batteries for long service life)

IT Cellulose pulp
(mercerized; multilayered nonwoven fabric separators having certain porosity or gas permeability in alkaline batteries for long service life)

IT Nonwoven fabrics

Porosity

Primary **battery separators**

(multilayered nonwoven fabric **separators** having certain porosity or gas permeability in alkaline batteries for long service life)

IT Rayon, uses

Vinal fibers

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(multilayered nonwoven fabric separators having certain porosity or gas permeability in alkaline batteries for long service life)

IT Polyamide fibers, uses

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(**p-phenylenediamine**-terephthalic acid; multilayered nonwoven fabric separators having certain porosity or gas permeability in alkaline batteries for long service life)

IT 24938-64-5, Poly(**p-phenyleneterephthalamide**)

25035-37-4, Poly(**p-phenyleneterephthalamide**)

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(fibers; multilayered nonwoven fabric **separators** having certain porosity or gas permeability in alkaline **batteries** for long service life)

IT 24938-64-5, Poly(**p-phenyleneterephthalamide**)

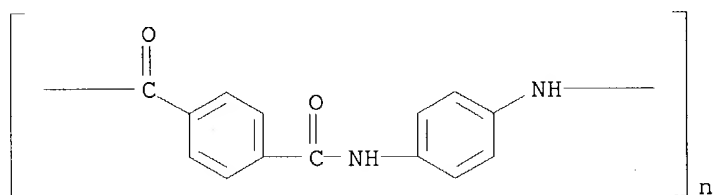
25035-37-4, Poly(**p-phenyleneterephthalamide**)

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(fibers; multilayered nonwoven fabric **separators** having certain porosity or gas permeability in alkaline **batteries** for long service life)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



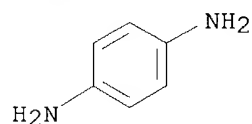
RN 25035-37-4 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

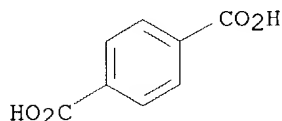
CRN 106-50-3

CMF C6 H8 N2



CM 2

CRN 100-21-0
CMF C8 H6 O4



L20 ANSWER 23 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:388982 HCAPLUS
DN 134:369461
ED Entered STN: 30 May 2001
TI Coin-type secondary nonaqueous-electrolyte lithium battery having high resistance to reflow soldering
IN Takasugi, Shinichi; Harada, Toyoo; Sakai, Tsugio
PA Seiko Instruments, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-04
ICS H01M002-08; H01M004-02; H01M004-48; H01M004-58; H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001148242	A2	20010529	JP 1999-346275	19991206
	US 6489062	B1	20021203	US 1999-465078	19991216
PRAI	JP 1998-367884	A	19981224		
	JP 1999-254920	A	19990908		
	JP 1998-367881	A	19981224		
	JP 1998-367882	A	19981224		

AB The battery has electrodes comprising active mass, elec. conductor, and organic binder, heat-resistant electrolyte solution, heat-resistant separator, and heat-resistant gasket, and so on. In the battery, the cathode and/or anode are heat-treated at 200-450° for suppression of their deterioration. The battery has high heat resistance at reflow temperature, and it is useful for being mounted on printed circuit board.

ST heat resistance coin nonaq electrolyte lithium battery; electrode heat treatment lithium battery reflow soldering resistance

IT Polyesters, uses

RL: DEV (Device component use); USES (Uses)

(aromatic, gasket; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Battery anodes

Battery cathodes

Battery electrolytes

Heat treatment

Heat-resistant materials

Secondary battery separators

(coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Carbon black, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (elec. conductor in cathode; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Fluoropolymers, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (electrode binder, **separator**; coin-type nonaq.-electrolyte Li **battery** having heat-treated electrodes for high resistance to reflow soldering)

IT Polyamides, uses
 Polyesters, uses
 Polyimides, uses
 Polythiophenylenes
 RL: DEV (Device component use); USES (Uses)
 (gasket; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Polyketones
 RL: DEV (Device component use); USES (Uses)
 (polyether-, gasket; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Polyethers, uses
 RL: DEV (Device component use); USES (Uses)
 (polyketone-, gasket; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Soldering
 (reflow; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT Glass fibers, uses
 RL: DEV (Device component use); USES (Uses)
 (**separator**; coin-type nonaq.-electrolyte Li **battery** having heat-treated electrodes for high resistance to reflow soldering)

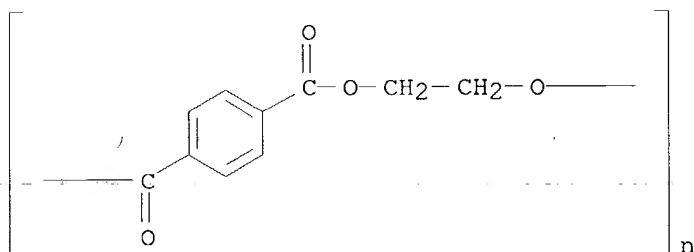
IT 7440-44-0, Carbon, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (activated, cathode active mass; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT 7631-86-9, Silica, uses 12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂)
 18868-43-4, Molybdenum oxide (MoO₂) 21651-19-4, Tin oxide (SnO)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (anode active mass; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT 7439-93-2, Lithium, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (anode intercalated with; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)

IT 1313-13-9, Manganese oxide (MnO₂), uses 1313-27-5, Molybdenum oxide (MoO₃), uses 1313-96-8, Niobium oxide (Nb₂O₅) 12031-65-1, Lithium nickel oxide (LiNiO₂) 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 12057-19-1, Lithium titanium oxide (LiTiO₂) 12190-79-3, Cobalt lithium oxide (CoLiO₂) 101920-93-8, Cobalt lithium nickel oxide (Co_{0.5}LiNi_{0.5}O₂) 158263-50-4, Lithium titanium oxide (Li_{1.33}Ti_{1.66}O₄) 213692-55-8, Lithium manganese oxide (Li_{0.36}MnO_{2.43})
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (cathode active mass; coin-type nonaq.-electrolyte Li battery having

- heat-treated electrodes for high resistance to reflow soldering)
- IT 340700-92-7, Molybdenum oxide (MoO₂.71)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (cathode and anode active mass; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)
- IT 7782-42-5, Graphite, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (elec. conductor in cathode; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)
- IT 9002-84-0, Tetrafluoroethene homopolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (electrode binder, **separator**; coin-type nonaq.-electrolyte Li **battery** having heat-treated electrodes for high resistance to reflow soldering)
- IT 9003-01-4, Acrylic acid homopolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (electrode binder; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)
- IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solution; coin-type nonaq.-electrolyte Li battery having heat-treated electrodes for high resistance to reflow soldering)
- IT 25038-59-9, Polyethylene terephthalate, uses 25212-74-2, Poly(**p**-phenylene sulfide)
 RL: DEV (Device component use); USES (Uses)
 (**gasket**; coin-type nonaq.-electrolyte Li **battery** having heat-treated electrodes for high resistance to reflow soldering)
- IT 25038-59-9, Polyethylene terephthalate, uses
 RL: DEV (Device component use); USES (Uses)
 (**gasket**; coin-type nonaq.-electrolyte Li **battery** having heat-treated electrodes for high resistance to reflow soldering)
- RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 24 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:372230 HCAPLUS
 DN 134:354027

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

ED Entered STN: 24 May 2001
 TI Resin composition for sealing gasket of nonaqueous electrolyte electric battery
 IN Moritomi, Satoru
 PA Sumitomo Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08L071-12
 ICS C08L025-02; H01M002-08
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 72, 76

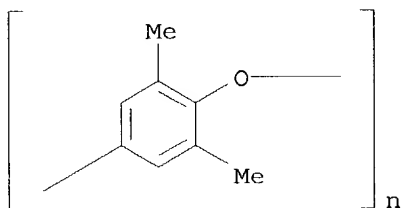
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001139797	A2	20010522	JP 1999-319503	19991110
PRAI	JP 1999-319503		19991110		
AB	Title resin composition comprises (A) 100 parts of a resin material of aromatic alkenyl compds. (styrene resin) and (B) 30-150 parts of a polyphenylene ether resin.				
ST	gasket sealing battery nonaq electrolyte; polyphenylene ether battery sealing gasket				
IT	EPDM rubber				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (ethylene-ethylidenenorbornene-propene; resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	Battery electrolytes				
	Gaskets (resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	Polyoxyphenylenes				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	Polymer blends				
	RL: TEM (Technical or engineered material use); USES (Uses) (resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	234781-30-7, H 554				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (impact-resistant polystyrene; resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	9002-88-4, F 101-1 9003-53-6, G 690K 24938-67-8 , Poly(2,6-dimethyl-1,4-phenylene) ether 25134-01-4				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	25038-36-2, Ethylene-ethylidenenorbornene-propene copolymer				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (rubber; resin composition for sealing gasket of nonaq. electrolyte elec. battery)				
IT	24938-67-8 , Poly(2,6-dimethyl-1,4-phenylene) ether 25134-01-4				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)				

(resin composition for sealing **gasket** of nonaq. electrolyte elec.
battery)

RN 24938-67-8 HCAPLUS

CN Poly[oxy(2,6-dimethyl-1,4-phenylene)] (9CI) (CA INDEX NAME)



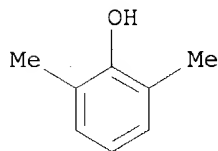
RN 25134-01-4 HCAPLUS

CN Phenol, 2,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 576-26-1

CMF C8 H10 O



L20 ANSWER 25 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:62736 HCAPLUS

DN 134:118359

ED Entered STN: 26 Jan 2001

TI Manufacture of **separators** for secondary **batteries** with
nonaqueous electrolytes and nonaqueous electrolyte secondary batteries

IN Shinohara, Yasuo; Sato, Hiroyuki; Takahashi, Tsutomu

PA Sumitomo Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-16

ICS H01M002-16; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001023602	A2	20010126	JP 1999-198802	19990713
PRAI	JP 1999-198802		19990713		

AB Manufacture of the separator is carried out by application of a heat-resistant polymer solution on a porous film, with impregnation of the film with a liquid, before or after application of the polymer solution. The liquid may be a polar solvent used in the polymer solution or its mixture with water. Secondary **batteries** comprising of thus prepared **separators** are also claimed. The batteries have excellent shut down characteristics.

ST nonaq electrolyte secondary **battery separator** manuf;
 solvent impregnation porous film **battery separator**

IT Porous materials
 (films; manufacture of **separators** for nonaq. electrolytes
 secondary **batteries** by impregnation of porous films with
 solvents before or after application of polymer solns.)

IT Polar solvents
 Secondary **battery separators**
 (manufacture of **separators** for nonaq. electrolytes secondary
batteries by impregnation of porous films with solvents before
 or after application of polymer solns.)

IT Polyamides, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PNU (Preparation, unclassified); PREP (Preparation); PROC
 (Process); USES (Uses)
 (manufacture of **separators** for nonaq. electrolytes secondary
batteries by impregnation of porous films with solvents before
 or after application of polymer solns.)

IT Secondary **batteries**
 (nonaq. electrolyte; manufacture of **separators** for nonaq.
 electrolytes secondary **batteries** by impregnation of porous
 films with solvents before or after application of polymer solns.)

IT Films
 (porous; manufacture of **separators** for nonaq. electrolytes
 secondary **batteries** by impregnation of porous films with
 solvents before or after application of polymer solns.)

IT 9002-88-4, Polyethylene
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (Hipore; manufacture of **separators** for nonaq. electrolytes
 secondary **batteries** by impregnation of porous films with
 solvents before or after application of polymer solns.)

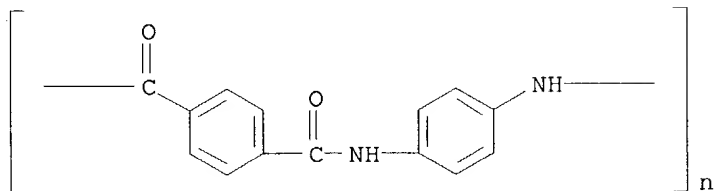
IT **24938-64-5P** 26125-61-1P, **p-Phenylenediamine**
 -terephthalic acid dichloride copolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PNU (Preparation, unclassified); PREP (Preparation); PROC
 (Process); USES (Uses)
 (manufacture of **separators** for nonaq. electrolytes secondary
batteries by impregnation of porous films with solvents before
 or after application of polymer solns.)

IT 872-50-4, NMP, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (porous film treatment with; manufacture of **separators** for nonaq.
 electrolytes secondary **batteries** by impregnation of porous
 films with solvents before or after application of polymer solns.)

IT **24938-64-5P**
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PNU (Preparation, unclassified); PREP (Preparation); PROC
 (Process); USES (Uses)
 (manufacture of **separators** for nonaq. electrolytes secondary
batteries by impregnation of porous films with solvents before
 or after application of polymer solns.)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA
 INDEX NAME)



L20 ANSWER 26 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:624981 HCAPLUS
 DN 133:225557
 ED Entered STN: 08 Sep 2000
 TI High-temperature-resistant coin-type (button-type) secondary nonaqueous electrolyte batteries
 IN Watanabe, Shunji; Onodera, Hideharu; Sakai, Tsugio
 PA Seiko Instruments, Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 IC ICM H01M010-40
 ICS H01M010-40; H01M002-16; H01M004-48; H01M004-58
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 76

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000243454	A2	20000908	JP 1999-187818	19990701
	US 6489062	B1	20021203	US 1999-465078	19991216
PRAI	JP 1998-367881	A	19981224		
	JP 1998-367882	A	19981224		
	JP 1998-367884	A	19981224		
	JP 1999-254920	A	19990908		

AB The batteries use LiCoO₂ or LiNiO₂ as cathode active materials and Mo oxide or Fe sulfide as anode active materials. Preferably, the batteries use nonaq. solvents having b.p. $\geq 200^\circ$, electrolytes of F-containing salts, separators from glass fibers or resins having deflection temperature under load $\geq 230^\circ$, and gaskets from resins having deflection temperature under load $\geq 230^\circ$. The batteries show high capacity, long cycle life, and good stability during reflow soldering on printed circuit boards, etc.

ST coin battery reflow soldering temp resistance; lithium cobalt oxide cathode coin battery; nickel lithium oxide cathode coin battery; molybdenum oxide anode battery heat resistance; iron sulfide anode battery heat resistance

IT Secondary batteries
 (button-type; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Battery anodes
 Battery cathodes
 Battery electrolytes
 Gaskets

Secondary battery separators
 (coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Secondary batteries
(lithium; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Soldering
(reflow; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Polyamides, uses
Polyesters, uses
Polyimides, uses
Polymers, uses
Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(separators and gaskets; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Glass fibers, uses
RL: DEV (Device component use); USES (Uses)
(separators; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT 1313-27-5, Molybdenum oxide (MoO₃), uses 1317-37-9, Iron sulfide (FeS)
12033-38-4, Molybdenum oxide (MoO_{2.75}) 12163-73-4, Molybdenum oxide (Mo₂O₅) 18868-43-4, Molybdenum dioxide 61349-43-7, Molybdenum oxide (Mo₃O₈)
RL: DEV (Device component use); USES (Uses)
(anode; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT 12031-65-1, Lithium nickel oxide (LiNiO₂) 12190-79-3, Cobalt lithium oxide (CoLiO₂)
RL: DEV (Device component use); USES (Uses)
(cathode; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

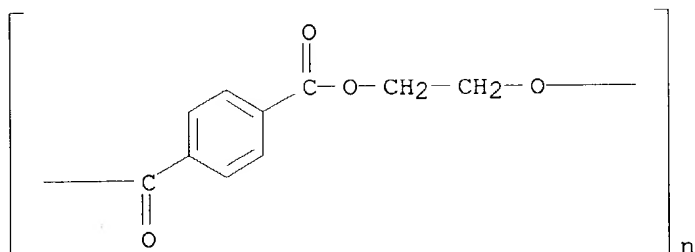
IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate
RL: DEV (Device component use); USES (Uses)
(electrolyte; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT **25038-59-9**, Poly(ethylene terephthalate), uses
RL: DEV (Device component use); USES (Uses)
(separators and **gaskets**; coin-type secondary nonaq. electrolyte **batteries** resistant to high temperature during reflow soldering)

IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvent; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT **25038-59-9**, Poly(ethylene terephthalate), uses
RL: DEV (Device component use); USES (Uses)
(separators and **gaskets**; coin-type secondary nonaq. electrolyte **batteries** resistant to high temperature during reflow soldering)

RN 25038-59-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 27 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:624976 HCAPLUS
 DN 133:225555
 ED Entered STN: 08 Sep 2000
 TI High-temperature-resistant coin-type (button-type) secondary nonaqueous electrolyte batteries
 IN Watanabe, Shunji; Onodera, Hideharu; Sakai, Tsugio
 PA Seiko Instruments, Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 IC ICM H01M010-40
 ICS H01M004-02; H01M004-58
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 76

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000243445	A2	20000908	JP 1999-187817	19990701
	US 6489062	B1	20021203	US 1999-465078	19991216
PRAI	JP 1998-367882	A	19981224		
	JP 1998-367881	A	19981224		
	JP 1998-367884	A	19981224		
	JP 1999-254920	A	19990908		

AB The batteries use a cathode active material of LiMn2O4 and anode active materials selected from Mo oxide, Li titanate, Fe sulfide, and Nb2O5. Preferably, the batteries use nonaq. solvents having b.p. $\geq 200^\circ$, electrolytes of F-containing salts, separators from glass fibers or resins having deflection temperature under load $\geq 230^\circ$, and gaskets from resins having deflection temperature under load $\geq 230^\circ$. The batteries show high capacity, long cycle life, and good stability during reflow soldering on printed circuit boards, etc.

ST coin battery reflow soldering temp resistance; lithium manganese oxide cathode coin battery; molybdenum oxide anode battery heat resistance; titanate lithium anode battery heat resistance; iron sulfide anode battery heat resistance; niobium pentoxide anode battery heat resistance

IT Secondary batteries
 (button-type; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Battery anodes
 Battery cathodes
 Battery electrolytes
 Gaskets
 Secondary battery separators

(coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Secondary batteries
(lithium; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Soldering
(reflow; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Polyamides, uses
Polyesters, uses
Polyimides, uses
Polymers, uses
Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(separators and gaskets; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT Glass fibers, uses
RL: DEV (Device component use); USES (Uses)
(separators; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT 1313-27-5, Molybdenum oxide (MoO3), uses 1313-96-8, Niobium pentoxide
1317-37-9, Iron sulfide (FeS) 12031-95-7, Lithium titanate (Li4Ti5O12)
12033-38-4, Molybdenum oxide (MoO2.75) 12034-59-2, Niobium oxide (Nb2O4)
12163-73-4, Molybdenum oxide (Mo2O5) 18868-43-4, Molybdenum dioxide
39302-37-9, Lithium titanate 61349-43-7, Molybdenum oxide (Mo3O8)
RL: DEV (Device component use); USES (Uses)
(anode; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT 12057-17-9, Lithium manganese oxide (LiMn2O4)
RL: DEV (Device component use); USES (Uses)
(cathode; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate
RL: DEV (Device component use); USES (Uses)
(electrolyte; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

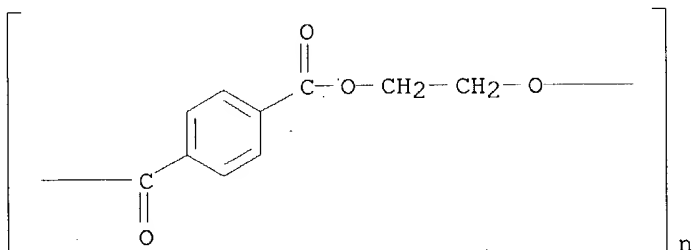
IT **25038-59-9**, Poly(ethylene terephthalate), uses
RL: DEV (Device component use); USES (Uses)
(separators and **gaskets**; coin-type secondary nonaq. electrolyte **batteries** resistant to high temperature during reflow soldering)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvent; coin-type secondary nonaq. electrolyte batteries resistant to high temperature during reflow soldering)

IT **25038-59-9**, Poly(ethylene terephthalate), uses
RL: DEV (Device component use); USES (Uses)
(separators and **gaskets**; coin-type secondary nonaq. electrolyte **batteries** resistant to high temperature during reflow soldering)

RN 25038-59-9 HCAPLUS

CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



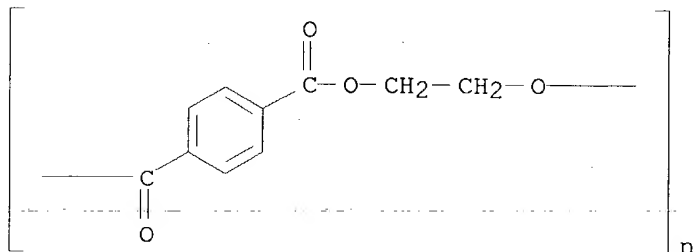
L20 ANSWER 28 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:474451 HCAPLUS
 DN 133:76729
 ED Entered STN: 14 Jul 2000
 TI Secondary nonaqueous electrolyte batteries using improved separators
 IN Watanabe, Shunji; Tamachi, Tsuneaki; Harada, Toyoo; Sakai, Tsugio;
 Iwasaki, Fumiharu
 PA Seiko Instruments, Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS H01M002-16; H01M004-58; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000195494	A2	20000714	JP 1999-250370	19990903
PRAI	JP 1998-300212	A	19981021		
AB	The batteries are sealed with gaskets, etc., and use Li ⁺ -intercalatable cathodes, anodes, Li ⁺ -conductive nonaq. electrolytes, and separators comprising porous film-shaped or nonwoven fabric sheets mixed or coated with polymers capable of swelling by absorbing electrolyte solns. or solid polymer electrolytes. The porous sheets and the gaskets may be made of heat-resistant polymers. Diagrams of coin-type batteries are given. The batteries show high capacity and are resistant to high temperature during reflow soldering.				
ST	lithium battery separator porous polymer sheet; nonaq electrolyte absorbing polymer separator battery; heat resistance polymer gasket sealed battery				
IT	Polyesters, uses RL: DEV (Device component use); USES (Uses) (aromatic, sheets or gaskets; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)				
IT	Polythiophenylenes Polythiophenylenes RL: DEV (Device component use); USES (Uses) (fiber, nonwoven fabrics; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)				
IT	Polyoxyalkylenes, uses RL: DEV (Device component use); USES (Uses)				

- (lithium complexes, electrolyte; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Secondary batteries
(lithium; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Polypropene fibers, uses
RL: DEV (Device component use); USES (Uses)
(nonwoven fabrics; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Polyketones
Polyketones
RL: DEV (Device component use); USES (Uses)
(polyether-, sheets or gaskets; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Polyethers, uses
Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polyketone-, sheets or gaskets; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Synthetic polymeric fibers, uses
Synthetic polymeric fibers, uses
RL: DEV (Device component use); USES (Uses)
(polythiophenylenes, nonwoven fabrics; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Battery anodes
Battery cathodes
Battery electrolytes
Gaskets
Nonwoven fabrics
Plastic films
Polymer electrolytes
Secondary battery separators
(sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Secondary batteries
(sealed; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Polyamides, uses
Polyesters, uses
Polyimides, uses
Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(sheets or gaskets; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Glass fibers, uses
RL: DEV (Device component use); USES (Uses)
(sheets; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT Lithium alloy
RL: DEV (Device component use); USES (Uses)
(anode; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 7439-93-2, Lithium, uses 12798-95-7 113443-18-8, Silicon monoxide
RL: DEV (Device component use); USES (Uses)

- (anode; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 12031-92-4, Lithium manganese oxide (Li₄Mn₅O₁₂)
 RL: DEV (Device component use); USES (Uses)
 (cathode or anode; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 1313-27-5, Molybdenum oxide, uses 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 RL: DEV (Device component use); USES (Uses)
 (cathode; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
 RL: DEV (Device component use); USES (Uses)
 (electrolyte solution; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 7439-93-2D, Lithium, poly(ethylene oxide) complexes, uses 12136-58-2, Lithium sulfide 13453-84-4, Lithium silicon oxide (Li₄SiO₄) 13759-10-9, Silicon disulfide 21324-40-3D, Lithium hexafluorophosphate, poly(ethylene oxide) complexes 25322-68-3D, Poly(ethylene oxide), lithium complexes
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 25085-53-4, Isotactic polypropylene 25212-74-2, Poly(phenylene sulfide)
 RL: DEV (Device component use); USES (Uses)
 (fiber, nonwoven fabrics; sealed secondary nonaq. electrolyte batteries using separators and gaskets for high capacity and heat resistance)
- IT 25038-59-9, Poly(ethylene terephthalate), uses
 RL: DEV (Device component use); USES (Uses)
 (sheets or **gaskets**; sealed secondary nonaq. electrolyte **batteries** using separators and **gaskets** for high capacity and heat resistance)
- IT 25038-59-9, Poly(ethylene terephthalate), uses
 RL: DEV (Device component use); USES (Uses)
 (sheets or **gaskets**; sealed secondary nonaq. electrolyte **batteries** using separators and **gaskets** for high capacity and heat resistance)
- RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 29 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:421446 HCAPLUS
 DN 133:32696
 ED Entered STN: 23 Jun 2000

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

TI Protective coating for **battery separators** with
microporous pseudo-boehmite layer
IN Ying, Qicong; Carlson, Steven A.; Skotheim, Terje A.
PA Moltech Corporation, USA
SO PCT Int. Appl., 76 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM H01M002-16
ICS H01M010-40; B01D071-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 57

FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000036671	A1	20000622	WO 1999-US30214	19991216
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6194098	B1	20010227	US 1998-215029	19981217
	US 6183901	B1	20010206	US 1999-399967	19990921
	US 6277514	B1	20010821	US 1999-447901	19991123
	EP 1151486	A1	20011107	EP 1999-966420	19991216
	EP 1151486	B1	20030521		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002532852	T2	20021002	JP 2000-588826	19991216
PRAI	US 1998-215029	A2	19981217		
	US 1999-399967	A2	19990921		
	US 1999-447901	A2	19991123		
	WO 1999-US30214	W	19991216		
AB	This invention pertains to separators for use in electrochem. cells which comprise at least one microporous pseudo-boehmite layer, which separator is in contact with at least one protective coating layer positioned on the anode-facing side of the separator opposite from the cathode active layer in the cell; electrolyte elements comprising such separators; elec. current producing cells comprising such separators; and methods of making such separators, electrolyte elements and cells.				
ST	battery separator microporous pseudoboehmite layer				
	polymer protective coating				
IT	Polyesters, uses				
	RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)				
	(acrylates; protective coating for battery separators with microporous pseudo-boehmite layer)				
IT	Sulfide glasses				
	RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)				
	(germanium lithium sulfide; protective coating for battery separators with microporous pseudo-boehmite layer)				
IT	Styrene-butadiene rubber, uses				
	RL: DEV (Device component use); TEM (Technical or engineered material				

use); USES (Uses)
(hydrogenated, block, triblock; protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT Sulfide glasses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(lithium phosphorus sulfide; protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT Polyurethanes, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, acrylic; protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT **Battery** anodes
Coating process
Conducting polymers
Electric conductors, glass
Secondary **batteries**
Secondary **battery separators**
(protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT ABS rubber
Nitrile rubber, uses
Polyacenes
Polyacetylenes, uses
Polyolefins
Polyurethanes, uses
Styrene-butadiene rubber, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 9003-56-9
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(abs rubber, protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 10377-52-3, Lithium phosphate 12627-14-4, Lithium silicate 12676-27-6
37220-89-6, Lithium aluminate 39302-37-9, Lithium titanium oxide
152747-89-2, Lanthanum lithium oxide 184905-46-2, Lithium nitrogen
phosphorus oxide 236388-73-1, Lithium silicide sulfide 236388-74-2,
Lithium boride sulfide 236388-75-3, Aluminum lithium sulfide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(ion-conducting glass; protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 9003-18-3
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(nitrile rubber, protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 7631-86-9, Silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(pigment; protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 110-71-4 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses 7704-34-9,
Sulfur, uses 63957-70-0, Pseudoboehmite 90076-65-6
RL: DEV (Device component use); USES (Uses)

(protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 9003-19-4, Polyvinyl ether 9003-39-8, Polyvinyl pyrrolidone 9003-63-8, Polybutyl methacrylate 25067-58-7, Polyacetylene 25190-62-9, Poly(**p-phenylene**) 28774-98-3, Poly(naphthalene-2,6-diyl) **64401-02-1D**, polymer withurethane acrylate 82451-56-7, Polyazulene 96638-49-2, Poly(phenylenevinylene) 114239-80-4, Poly(perinaphthalene)

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 9003-55-8

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(styrene-butadiene rubber, hydrogenated, block, triblock; protective coating for **battery separators** with microporous pseudo-boehmite layer)

IT 9003-55-8

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(styrene-butadiene rubber, protective coating for **battery separators** with microporous pseudo-boehmite layer)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anani, A; US 5549989 A 1996 HCAPLUS

(2) Bates, J; US 5314765 A 1994 HCAPLUS

(3) Fuji Photo Film Co Ltd; EP 0836238 A 1998 HCAPLUS

(4) Skotheim Terje Absjorn; US 5648187 A 1997 HCAPLUS

(5) Ying Qicong; WO 9933125 A 1999 HCAPLUS

IT **64401-02-1D**, polymer withurethane acrylate

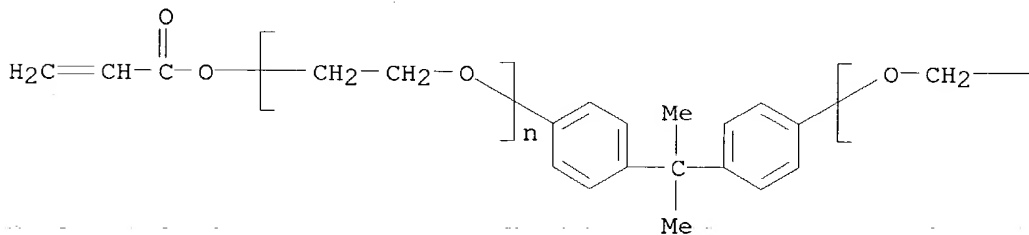
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(protective coating for **battery separators** with microporous pseudo-boehmite layer)

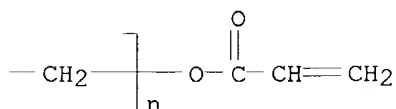
RN 64401-02-1 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α, α' -[(1-methylethylidene)di-4,1-phenylene]bis[ω -(1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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L20 ANSWER 30 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:421445 HCAPLUS
 DN 133:32695
 ED Entered STN: 23 Jun 2000
 TI Polymer protective coating for battery separators containing microporous pseudo-boehmite layer
 IN Ying, Qicong; Carlson, Steven A.; Skotheim, Terje A.
 PA Moltech Corp., USA
 SO PCT Int. Appl., 90 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM H01M002-16
 ICS H01M010-40; B01D071-02
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 FAN.CNT 4

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000036670	A1	20000622	WO 1999-US30136	19991216
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6194098	B1	20010227	US 1998-215029	19981217
US 6183901	B1	20010206	US 1999-399967	19990921
US 6277514	B1	20010821	US 1999-447901	19991123
EP 1149425	A1	20011031	EP 1999-967395	19991216
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI US 1998-215029	A2	19981217		
US 1999-399967	A2	19990921		
US 1999-447901	A2	19991123		
WO 1999-US30136	W	19991216		
AB	This invention pertains to separators for electrochem. cells which comprise (i) two microporous pseudo-boehmite layers and (ii) a protective coating layer comprising a polymer interposed between the microporous pseudo-boehmite layers; electrolyte elements comprising such separators; elec. current producing cells comprising such separators; and methods of making such separators, electrolyte elements and cells.			
ST	battery separator microporous pseudoboehmite layer polymer protective coating			
IT	Polyurethanes, uses			
	RL: DEV (Device component use); USES (Uses)			

- (acrylates; polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Synthetic rubber, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (butene-ethylene-styrene, block, triblock, sulfonated; polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Polyesters, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polyacrylate-; polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Coating **materials**
 - Conducting polymers
 - Secondary battery separators
 - (**polymer** protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Polysulfides
 - Transition metal chalcogenides
 - RL: DEV (Device component use); USES (Uses)
 - (polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT ABS rubber
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Nitrile rubber, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Polyolefins
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Polyurethanes, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Styrene-butadiene rubber, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Epoxides
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polymers; polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT Polyurethanes, uses
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (polyoxyalkylene-, acrylic; polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT 9003-56-9
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (abs rubber, polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT 9003-18-3
 - RL: TEM (Technical or engineered material use); USES (Uses)
 - (nitrile rubber, polymer protective coating for battery separators containing microporous pseudo-boehmite layer)
- IT 1332-29-2, Tin oxide 1344-28-1, Alumina, uses 7440-44-0, Carbon, uses

7631-86-9, Colloidal silica, uses 13463-67-7, Titanium oxide, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (pigment; polymer protective coating for battery separators containing
 microporous pseudo-boehmite layer)

IT 110-71-4 646-06-0, 1,3-Dioxolane 7439-93-2, Lithium, uses
 7440-44-0D, Carbon, lithiated, uses 7704-34-9, Sulfur, uses 12798-95-7
 39448-96-9, Graphite lithium 53680-59-4 63957-70-0, PseudoBoehmite
 RL: DEV (Device component use); USES (Uses)
 (polymer protective coating for battery separators containing microporous
 pseudo-boehmite layer)

IT 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol 9003-07-0,
 Polypropylene 9003-19-4, Polyvinyl ether 9003-28-5, Polybutene
 9003-39-8, Polyvinylpyrrolidone 9003-53-6, Polystyrene 9003-63-8,
 Polybutyl methacrylate 9065-92-3, Polyoctene 9078-70-0, Polypentene
 50981-41-4, Polyhexene **64401-02-1D**, polymer with urethane
 acrylate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polymer protective coating for **battery separators**
 containing microporous pseudo-boehmite layer)

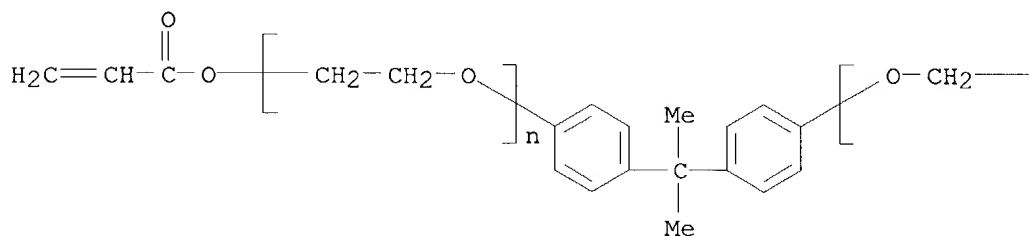
IT 9003-55-8
 RL: TEM (Technical or engineered material use); USES (Uses)
 (styrene-butadiene rubber, polymer protective coating for battery
 separators containing microporous pseudo-boehmite layer)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Anani, A; US 5549989 A 1996 HCAPLUS
 (2) Fuji Photo Film Co Ltd; EP 0836238 A 1998 HCAPLUS
 (3) Skotheim Terje Absjorn; US 5648187 A 1997 HCAPLUS
 (4) Ying Qicong; WO 9933125 A 1999 HCAPLUS

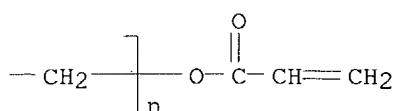
IT **64401-02-1D**, polymer with urethane acrylate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polymer protective coating for **battery separators**
 containing microporous pseudo-boehmite layer)

RN 64401-02-1 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), α,α' -[(1-methylethylidene)di-4,1-
 phenylene]bis[ω -(1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

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PAGE 1-B



L20 ANSWER 31 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:317241 HCAPLUS
 DN 132:336910
 ED Entered STN: 16 May 2000
 TI Polymeric separators and their manufacture for batteries
 IN Kami, Kenichiro; Agetshima, Keishi; Amano, Tadayoshi
 PA Denso Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS B32B005-18; C08J009-28; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000138048	A2	20000516	JP 1998-311193	19981030
PRAI	JP 1998-311193		19981030		

AB The separators comprise thermoplastic crystalline polymers having m.p. $\geq 150^\circ$ or thermoplastic noncryst. polymers having glass transition temperature $\geq 150^\circ$ and have spongy centers and surfaces having dense pores having smaller pore size than the centers. The separators are manufactured by dissolving **polymer materials** in good solvents for film formation, exposing the films to poor solvents for precipitating the polymers, and then drying to give porous bodies. Thus, Noryl 534 was dissolved in N-methyl-2-pyrrolidone for film formation, and then the film was immersed in iso-Pr alc. and dried to give a separator. The separators have good ion conductivity, heat resistance, and shut-down performance at high temperature and are especially suitable for secondary Li batteries.

ST separator porous polymer film manuf solvent battery

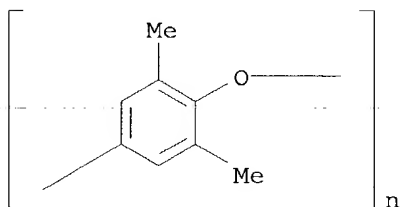
IT Polyimides, uses
 Polyimides, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (polyamide-; porous polymer separators manufactured by film formation and solvent treatment for batteries)

IT Polyimides, uses
 Polyimides, uses
 Polyketones
 Polyketones
 Polysulfones, uses
 Polysulfones, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (polyether-; porous polymer separators manufactured by film formation and solvent treatment for batteries)

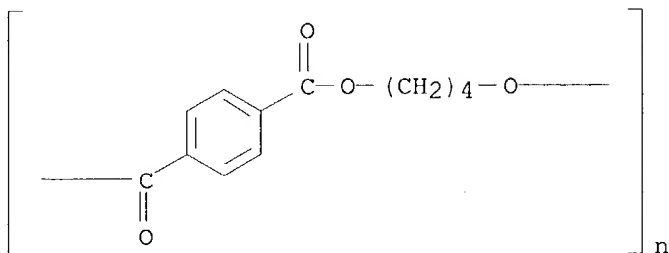
IT Polyamides, uses
 Polyamides, uses
 Polyethers, uses
 Polyethers, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (polyimide-; porous polymer separators manufactured by film formation and solvent treatment for batteries)

IT Polyethers, uses

- Polyethers, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (polyketone-; porous polymer separators manufactured by film formation and solvent treatment for batteries)
- IT Polyethers, uses
 Polyethers, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (polysulfone-; porous polymer separators manufactured by film formation and solvent treatment for batteries)
- IT Secondary battery separators
 Solvents
 (porous polymer separators manufactured by film formation and solvent treatment for batteries)
- IT Fluoropolymers, uses
 Polybenzimidazoles
 Polyimides, uses
 Polyoxymethylenes, uses
 Polysulfones, uses
 Polythiophenylenes
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (porous polymer separators manufactured by film formation and solvent treatment for batteries)
- IT 67-63-0, Isopropyl alcohol, uses 24937-79-9, Polyvinylidene fluoride
24938-67-8, Noryl 534 **24968-12-5**, Polybutylene terephthalate **26062-94-2**, Polybutylene terephthalate
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (porous polymer **separators** manufactured by film formation and solvent treatment for **batteries**)
- IT 872-50-4, N-Methyl-2-pyrrolidone, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (porous polymer separators manufactured by film formation and solvent treatment for batteries)
- IT **24938-67-8**, Noryl 534 **24968-12-5**, Polybutylene terephthalate **26062-94-2**, Polybutylene terephthalate
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (porous polymer **separators** manufactured by film formation and solvent treatment for **batteries**)
- RN 24938-67-8 HCAPLUS
 CN Poly[oxy(2,6-dimethyl-1,4-phenylene)] (9CI) (CA INDEX NAME)



- RN 24968-12-5 HCAPLUS
 CN Poly(oxy-1,4-butanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



RN 26062-94-2 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

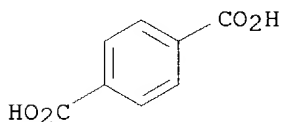
CM 1

CRN 110-63-4
 CMF C4 H10 O2

HO-(CH₂)₄-OH

CM 2

CRN 100-21-0
 CMF C8 H6 O4



L20 ANSWER 32 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:232760 HCAPLUS
 DN 132:253582
 ED Entered STN: 11 Apr 2000
 TI Batteries for mounting on substrates and method and apparatus for the mounting
 IN Obi, Fumio
 PA Matsushita Electric Industrial Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M006-16
 ICS H01M006-16; B60C023-02; H01M002-10; H01M002-16; H01M002-30; H01M004-02
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2000106195	A2	20000411	JP 1998-312903	19981104
	US 6376109	B1	20020423	US 1998-212964	19981216
	US 2002086191	A1	20020704	US 2001-41869	20011025
	US 2002090537	A1	20020711	US 2001-41870	20011025
PRAI	JP 1998-217246	A	19980731		
	JP 1997-353297	A	19971222		
	JP 1998-159077	A	19980608		
	JP 1998-312903	A	19981104		
	US 1998-212964	A3	19981216		

AB The batteries have metal oxide, halide, or sulfide based cathodes, anodes of light metals or their alloys, separators composed of materials having heat resistance $\geq 150^\circ$ between electrodes, electrolyte solns. containing Li salts dissolved in a single or a mixed organic solvent, b. $\geq 170^\circ$, an anode terminal sealed by a solvent resistant insulator gasket having heat resistance $\geq 150^\circ$ to the battery case, and mounting cathode and anode terminals connected to the battery terminals. The batteries are mounted on substrates for use under centrifugal force, by controlling the thickness direction of the battery to form a $0-60^\circ$ angle with the direction of the centrifugal force, with the half part of the battery in the thickness direction having lower void volume placed at the front side of the centrifugal force direction. The mounting device includes cathode and anode mounting terminals of different shape to distinguish the front and back sides for mounting.

ST lithium battery structure mounting means

IT Primary batteries
(compns. and structure of graphite fluoride/lithium batteries for mounting with high centrifugal forces tolerance)

IT Polythiophenylenes
Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(fiber; compns. and structure of graphite fluoride/lithium batteries for mounting with high centrifugal forces tolerance)

IT Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(gaskets for graphite fluoride/lithium batteries for use in high centrifugal force conditions)

IT Synthetic polymeric fibers, uses
Synthetic polymeric fibers, uses
RL: DEV (Device component use); USES (Uses)
(polythiophenylenes; compns. and structure of graphite fluoride/lithium batteries for mounting with high centrifugal forces tolerance)

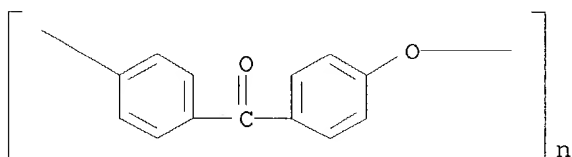
IT Glass fibers, uses
Polypropene fibers, uses
RL: DEV (Device component use); USES (Uses)
(separators for graphite fluoride/lithium batteries for use in high centrifugal force conditions)

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anodes for graphite fluoride/lithium batteries for use in high centrifugal force conditions)

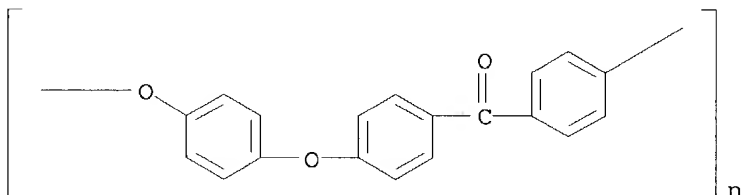
IT 11113-63-6, Graphite fluoride
RL: DEV (Device component use); USES (Uses)
(cathodes for graphite fluoride/lithium batteries for use in high centrifugal force conditions)

IT 96-48-0, γ -Butyrolactone 14283-07-9, Lithium fluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolytes for graphite fluoride/lithium batteries for use in high

centrifugal force conditions)
 IT 9003-07-0, Polypropylene 27380-27-4, Pek 31694-16-3, Peek
 RL: DEV (Device component use); USES (Uses)
 (gaskets for graphite fluoride/lithium batteries for use in high centrifugal force conditions)
 IT 27380-27-4, Pek 31694-16-3, Peek
 RL: DEV (Device component use); USES (Uses)
 (gaskets for graphite fluoride/lithium batteries for use in high centrifugal force conditions)
 RN 27380-27-4 HCAPLUS
 CN Poly(oxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

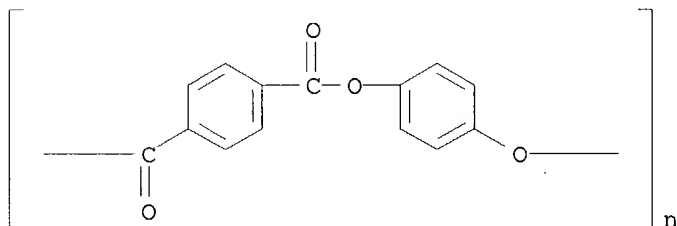


L20 ANSWER 33 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:227177 HCAPLUS
 DN 132:253569
 ED Entered STN: 07 Apr 2000
 TI Secondary nonaqueous electrolyte batteries
 IN Takahashi, Tsutomu; Tateno, Tatsuo; Shinohara, Yasuo
 PA Sumitomo Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS H01M002-16; H01M004-02; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000100408	A2	20000407	JP 1998-266262	19980921
PRAI	JP 1998-266262		19980921		

AB The **batteries** have **separators** containing a heat resistant porous film and a shutdown film between the battery electrolyte, with the

porous film facing the cathode.
 ST secondary **battery separator** polymer laminate
 IT Secondary **battery separators**
 (porous heat resistant polymer-shutdown film laminates for secondary lithium batteries)
 IT Polyesters, uses
 RL: DEV (Device component use); USES (Uses)
 (porous heat resistant polymer-shutdown film laminates for secondary lithium batteries)
 IT 9002-88-4, Polyethylene **26637-45-6**, Poly(**p-phenylene** terephthalate)
 RL: DEV (Device component use); USES (Uses)
 (porous heat resistant polymer-shutdown film laminates for secondary lithium batteries)
 IT **26637-45-6**, Poly(**p-phenylene** terephthalate)
 RL: DEV (Device component use); USES (Uses)
 (porous heat resistant polymer-shutdown film laminates for secondary lithium batteries)
 RN 26637-45-6 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 34 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:223846 HCAPLUS
 DN 132:239425
 ED Entered STN: 07 Apr 2000
 TI Alkaline **battery separators**
 IN Tanaka, Masanao; Sato, Kazuya
 PA Japan Vilene Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000100409	A2	20000407	JP 1998-268865	19980924
PRAI	JP 1998-268865		19980924		
AB	The separators are fiber sheets containing p-arom polyamide fibers having tensile strength ≥ 20 g/d.				
ST	separator alk battery arom polyamide fiber				
IT	Secondary battery separators (fiber sheet separators containing p-arom polyamide fibers for alkaline batteries)				

IT Polyamides, uses
 RL: DEV (Device component use); USES (Uses)
 (nylon sheathed fibers; fiber sheet separators containing p-arom polyamide fibers for alkaline batteries)

IT Polyamide fibers, uses
 RL: DEV (Device component use); USES (Uses)
 (p-aromatic; fiber sheet separators containing p-arom polyamide fibers for alkaline batteries)

IT Polyamides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (sheathed on nylon 66 fibers; fiber sheet separators containing p-arom polyamide fibers for alkaline batteries)

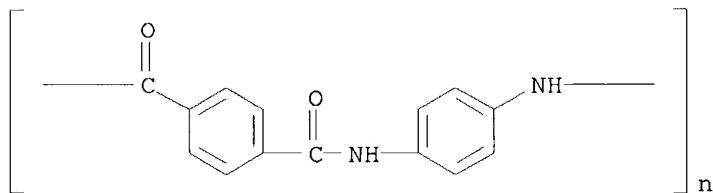
IT **24938-64-5**, Poly(**p-phenylene** terephthalamide)
25035-37-4, Poly(**p-phenylene** terephthalamide)
 RL: DEV (Device component use); USES (Uses)
 (fiber sheet **separators** containing p-arom polyamide fibers for alkaline **batteries**)

IT 32131-17-2, Nylon 66, uses
 RL: DEV (Device component use); USES (Uses)
 (nylon sheathed fibers; fiber sheet separators containing p-arom polyamide fibers for alkaline batteries)

IT 25038-54-4, Nylon 6, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (sheathed on nylon 66 fibers; fiber sheet separators containing p-arom polyamide fibers for alkaline batteries)

IT **24938-64-5**, Poly(**p-phenylene** terephthalamide)
25035-37-4, Poly(**p-phenylene** terephthalamide)
 RL: DEV (Device component use); USES (Uses)
 (fiber sheet **separators** containing p-arom polyamide fibers for alkaline **batteries**)

RN 24938-64-5 HCAPLUS
 CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)

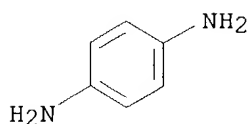


RN 25035-37-4 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

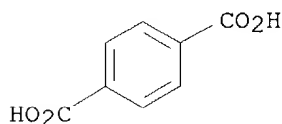
CRN 106-50-3

CMF C6 H8 N2



CM 2

CRN 100-21-0
CMF C8 H6 O4



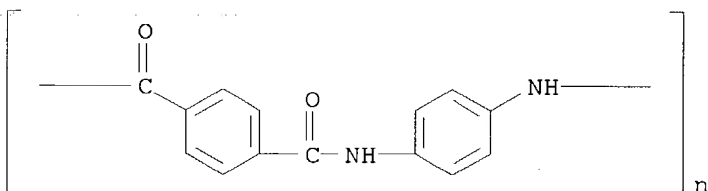
L20 ANSWER 35 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:739942 HCAPLUS
DN 131:325079
ED Entered STN: 22 Nov 1999
TI **Separator** for **batteries** with nonaqueous electrolyte
IN Shinohara, Yasuo; Tsujimoto, Yoshifumi; Nakano, Tsuyoshi
PA Sumitomo Chemical Co., Ltd., Japan
SO Ger. Offen., 20 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM H01M002-14
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 57

FAN.CNT 1

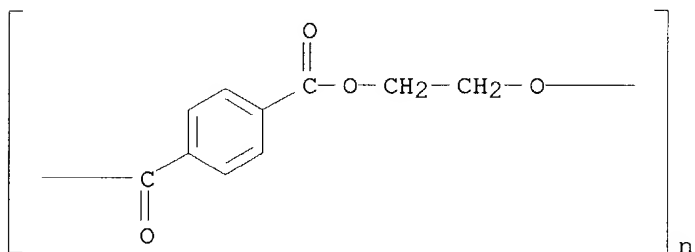
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19918856	A1	19991111	DE 1999-19918856	19990426
	TW 460505	B	20011021	TW 1999-88106201	19990419
	CA 2269892	AA	19991027	CA 1999-2269892	19990426
	JP 2000030686	A2	20000128	JP 1999-118004	19990426
	JP 3175730	B2	20010611		
	US 6447958	B1	20020910	US 1999-299077	19990426
PRAI	JP 1998-116838	A	19980427		

AB **Separator** for Li secondary **batteries** with nonaq.
electrolyte comprise a heat-resistant N-containing aromatic polymer and a
ceramic
powder. The separator also contains a substrate of fabric, fleece, paper,
or a porous film. The polymer used is an aromatic polyimide which is soluble
in
a solvent, and the ceramic powder is metal oxide, metal nitride, or metal
carbide. The metal oxide is Al oxide, Si oxide, Ti oxide, or Zr oxide.
ST **battery separator** arom polymer ceramic powder
IT Paper
Secondary **battery separators**
(aromatic polymer-ceramic **separator** for **batteries** with
nonaq. electrolyte)

- IT Polyimides, uses
 RL: DEV (Device component use); USES (Uses)
 (aromatic polymer-ceramic **separator** for **batteries** with
 nonaq. electrolyte)
- IT Carbides
 Nitrides
 Oxides (inorganic), uses
 Polyesters, uses
 Polyolefins
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (aromatic polymer-ceramic **separator** for **batteries** with
 nonaq. electrolyte)
- IT Polyamides, uses
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (aromatic; aromatic polymer-ceramic **separator** for **batteries**
 with nonaq. electrolyte)
- IT Secondary **batteries**
 (lithium; aromatic polymer-ceramic **separator** for
batteries with nonaq. electrolyte)
- IT Glass fibers, uses
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (substrate; aromatic polymer-ceramic **separator** for
batteries with nonaq. electrolyte)
- IT 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide (Al₂O₃), uses
 7631-86-9, Silica, uses 13463-67-7, Titanium oxide, uses
24938-64-5, Poly(**p**-phenyleneterephthalamide)
25038-59-9, Polyethylene terephthalate, uses
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (aromatic polymer-ceramic **separator** for **batteries** with
 nonaq. electrolyte)
- IT 872-50-4, n-Methyl-2-pyrrolidone, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (aromatic polymer-ceramic **separator** for **batteries** with
 nonaq. electrolyte)
- IT **24938-64-5**, Poly(**p**-phenyleneterephthalamide)
25038-59-9, Polyethylene terephthalate, uses
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (aromatic polymer-ceramic **separator** for **batteries** with
 nonaq. electrolyte)
- RN 24938-64-5 HCAPLUS
- CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA
 INDEX NAME)



RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 36 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:260932 HCAPLUS
 DN 130:284528
 ED Entered STN: 28 Apr 1999
 TI Zinc-alkaline **batteries** with polyamide/vinal fiber-based
separators
 IN Yoda, Kiyoto
 PA Toshiba Battery Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS H01M006-06; H01M010-24
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 40

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11111256	A2	19990423	JP 1997-272395	19971006
PRAI	JP 1997-272395		19971006		
AB	The title batteries are equipped with separators using nonwoven fabrics containing aromatic polyamide-based fibers and poly(vinyl alc.)-based fibers. Also claimed are above separators containing cellulose-based fibers. The separators have good alkali resistance and liquid absorption.				
ST	polyamide vinal fiber separator alk battery ; cellulose fiber nonwoven fabric separator battery				
IT	Primary battery separators (Zinc-alkaline batteries with polyamide/vinal fiber-based separators)				
IT	Polyamide fibers, uses RL: DEV (Device component use); USES (Uses) (aramid; polyamide/vinal fiber-based nonwoven fabric separators for Zn-alkaline batteries)				
IT	Fibers RL: DEV (Device component use); USES (Uses) (cellulosic; polyamide/vinal fiber-based nonwoven fabric separators for Zn-alkaline batteries)				
IT	Nonwoven fabrics Primary batteries				

Secondary batteries

Secondary **battery separators**

(polyamide/vinal fiber-based nonwoven fabric **separators** for
Zn-alkaline **batteries**)

IT Rayon, uses

Vinal fibers

RL: DEV (Device component use); USES (Uses)

(polyamide/vinal fiber-based nonwoven fabric **separators** for
Zn-alkaline **batteries**)

IT **24938-64-5**, Poly(**p-phenylene** terephthalamide)

25035-37-4, Poly(**p-phenylene** terephthalamide)

RL: DEV (Device component use); USES (Uses)

(polyamide/vinal fiber-based nonwoven fabric **separators** for
Zn-alkaline **batteries**)

IT **24938-64-5**, Poly(**p-phenylene** terephthalamide)

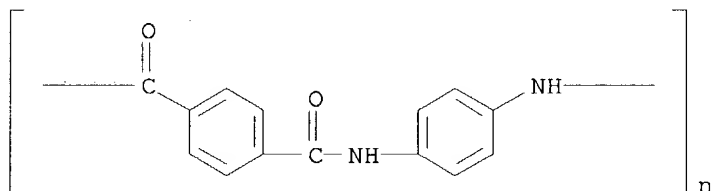
25035-37-4, Poly(**p-phenylene** terephthalamide)

RL: DEV (Device component use); USES (Uses)

(polyamide/vinal fiber-based nonwoven fabric **separators** for
Zn-alkaline **batteries**)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA
INDEX NAME)



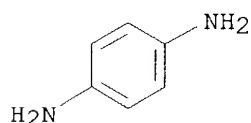
RN 25035-37-4 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA
INDEX NAME)

CM 1

CRN 106-50-3

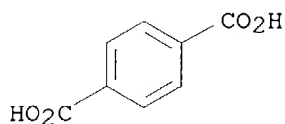
CMF C6 H8 N2



CM 2

CRN 100-21-0

CMF C8 H6 O4



L20 ANSWER 37 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:166547 HCAPLUS
 DN 130:224121
 ED Entered STN: 15 Mar 1999
 TI Composite solid polymer electrolyte membranes and casting or extrusion of
 a composite membrane
 IN Formato, Richard M.; Kovar, Robert F.; Osenar, Paul; Landrau, Nelson
 PA Foster-Miller, Inc., USA
 SO PCT Int. Appl., 70 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM B32B003-26
 ICS B01D021-28; B01D024-00; B05D005-00; H01M008-10
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 52, 66, 72
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9910165	A1	19990304	WO 1998-US17898	19980828
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2300934	AA	19990304	CA 1998-2300934	19980828
	AU 9892101	A1	19990316	AU 1998-92101	19980828
	EP 1021296	A1	20000726	EP 1998-944594	19980828
	R: DE, FR, GB, IT, SE				
	JP 2001514431	T2	20010911	JP 2000-507525	19980828
	US 6248469	B1	20010619	US 1999-261349	19990303
	CA 2342237	AA	20000420	CA 1999-2342237	19990826
	WO 2000022684	A2	20000420	WO 1999-US19476	19990826
	WO 2000022684	A3	20000720		
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 2000023415	A5	20000501	AU 2000-23415	19990826
	CA 2342221	AA	20000504	CA 1999-2342221	19990826
	WO 2000024796	A1	20000504	WO 1999-US19470	19990826
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG,				

KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,
 NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
 UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,
 CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 EP 1115769 A1 20010718 EP 1999-965719 19990826
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO
 JP 2003503510 T2 20030128 JP 2000-578363 19990826
 JP 2003528420 T2 20030924 JP 2000-576501 19990826
 US 2002045085 A1 20020418 US 2000-750402 20001228
 PRAI US 1997-57233P P 19970829
 WO 1998-US17898 W 19980828
 US 1999-261349 A 19990303
 US 1999-262861 A 19990303
 WO 1999-US19470 W 19990826
 WO 1999-US19476 W 19990826
 AB Composite solid polymer electrolyte membranes (SPEMs) include a porous
 polymer substrate interpenetrated with an ion-conducting material. The
 SPEMs are useful in electrochem. applications, including fuel cells,
 electrode separators, and electrodialysis. Thus, polybenzoxazole
 substrate film (solvent exchanged into NMP) was added to 5% solution containing
 sulfonated (75%) Radel R (I) and after 12 h placed into 20% solution of
 sulfonated I, and the composite film isolated, stretched, dried, and
 solvent extracted to give a film having resistance 0.056 Ω -cm²; vs.
 0.203 for a Nafion 117 control film.
 ST ion conducting material composite electrolyte membrane; porous
 polybenzoxazole film composite electrolyte membrane; fuel cell composite
 electrolyte membrane; electrodialysis composite electrolyte membrane;
 sulfonated polyether sulfone composite electrolyte membrane
 IT Polyamides, uses
 Polyketones
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (aromatic; in composite solid polymer electrolyte membranes)
 IT Heat-resistant materials
 Membranes, nonbiological
 (blend of porous polymer substrate and ion conducting material;
 composite solid polymer electrolyte membranes with low resistance, good
 strength and heat resistance)
 IT Polymer blends
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (blend of porous polymer substrate and ion conducting material;
 composite solid polymer electrolyte membranes with low resistance, good
 strength and heat resistance)
 IT Fuel cells
 (composite solid polymer electrolyte membranes with low resistance,
 good strength and heat resistance)
 IT Primary **batteries**
 (electrode **separators**; composite solid polymer electrolyte
 membranes with low resistance, good strength and heat resistance)
 IT Dialyzers
 (electrodialyzers; composite solid polymer electrolyte membranes with
 low resistance, good strength and heat resistance)
 IT Liquid crystals, polymeric
 (in composite solid polymer electrolyte membranes)

- IT Polybenzimidazoles
Polybenzothiazoles
Polybenzoxazoles
Polyimides, uses
Polyoxyphenylenes
Polysulfones, uses
Polythiophenylenes
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(in composite solid polymer electrolyte membranes)
- IT Polysulfones, uses
Polysulfones, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic; in composite solid polymer electrolyte membranes)
- IT Polyimides, uses
Polyimides, uses
Polyketones
Polyketones
Polysulfones, uses
Polysulfones, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; in composite solid polymer electrolyte membranes)
- IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyimide-; in composite solid polymer electrolyte membranes)
- IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; in composite solid polymer electrolyte membranes)
- IT Polyquinoxalines
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyphenylquinoxalines; in composite solid polymer electrolyte membranes)
- IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-, aromatic; in composite solid polymer electrolyte membranes)
- IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-; in composite solid polymer electrolyte membranes)
- IT 220998-11-8P, 6FDA-1,3-phenylenediamine-sodium 2,4-diaminobenzenesulfonate copolymer
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(imidized, sulfonated; in composite solid polymer electrolyte membranes)
- IT 25135-51-7DP, Udel, sulfonated 25667-42-9DP, Ultrason E, sulfonated 27380-27-4DP, Victrex pek, sulfonated 154281-38-6DP, Radel R, sulfonated, sodium salts

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(in composite solid polymer electrolyte membranes)

IT 220998-11-8DP, sulfonated

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(in composite solid polymer electrolyte membranes)

IT **24938-64-5, p-Phenylenediamine**-terephthalic

acid copolymer, sru **25035-37-4, p-**

Phenylenediamine-terephthalic acid copolymer 25190-62-9,

Poly(1,4-phenylene) **27028-97-3**, Polyphenylene sulfide sulfone

31694-16-3, PEEK 63496-24-2, Nafion ew 1100

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(in composite solid polymer electrolyte membranes)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bahar; US 5547551 A 1996 HCAPLUS

(2) Bahar; US 5599614 A 1997 HCAPLUS

(3) Wei; US 5422411 A 1995 HCAPLUS

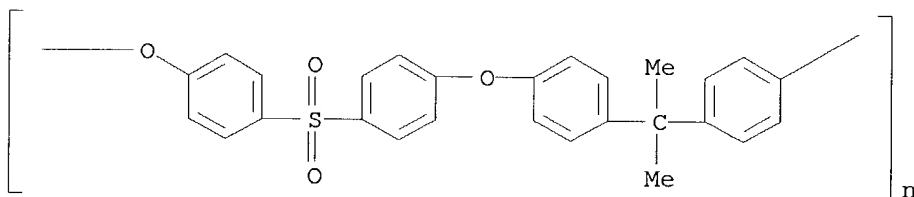
IT **25135-51-7DP**, Udel, sulfonated **25667-42-9DP**, Ultrason E, sulfonated **27380-27-4DP**, Victrex pek, sulfonated

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(in composite solid polymer electrolyte membranes)

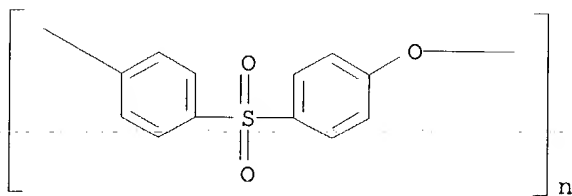
RN 25135-51-7 HCAPLUS

CN Poly[oxy-1,4-phenylenesulfonyl-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene] (9CI) (CA INDEX NAME)



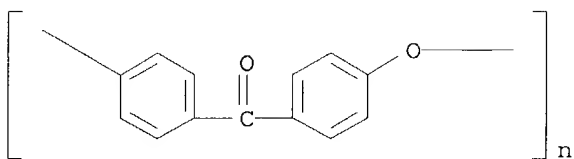
RN 25667-42-9 HCAPLUS

CN Poly(oxy-1,4-phenylenesulfonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

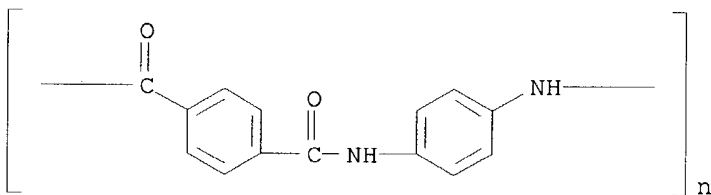


RN 27380-27-4 HCAPLUS

CN Poly(oxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



IT 24938-64-5, p-Phenylenediamine-terephthalic acid copolymer, sru 25035-37-4, p-Phenylenediamine-terephthalic acid copolymer 27028-97-3, Polyphenylene sulfide sulfone 31694-16-3, PEEK
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (in composite solid polymer electrolyte membranes)
 RN 24938-64-5 HCAPLUS
 CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)

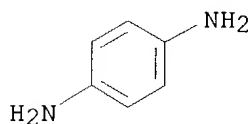


RN 25035-37-4 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

CRN 106-50-3

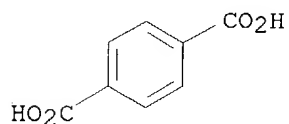
CMF C6 H8 N2



CM 2

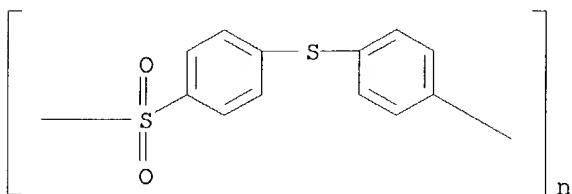
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CMF C8 H6 O4



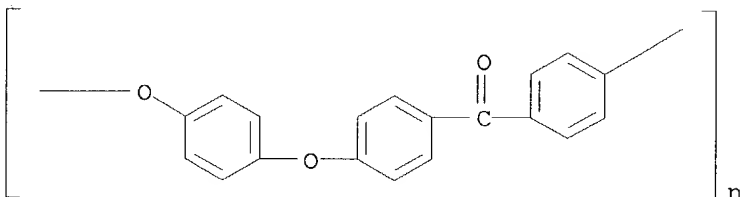
RN 27028-97-3 HCAPLUS

CN Poly(sulfonyl-1,4-phenylenethio-1,4-phenylene) (9CI) (CA INDEX NAME)



RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



L20 ANSWER 38 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:34491 HCAPLUS

DN 130:96632

ED Entered STN: 19 Jan 1999

TI Para-oriented aromatic polyamide porous films and their manufacture and use

IN Takahashi, Tsutomu; Tatenno, Tatsuo; Tsujimoto, Yoshifumi

PA Sumitomo Chemical Company, Limited, Japan

SO U.S., 15 pp., Cont.-in-part of U.S. Ser. No. 682,967, abandoned.

CODEN: USXXAM

DT Patent

LA English

IC ICM C08G073-10

ICS C08G069-08; B32B027-08; B29C039-14

NCL 528310000

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 52

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5856426	A	19990105	US 1996-756245	19961125
PRAI	JP 1995-181953	A	19950718		
	JP 1995-181955	A	19950718		
	JP 1995-338172	A	19951201		
	US 1996-682967	B2	19961125		

AB Para-oriented aromatic polyamide porous films containing fibrils having a diameter

of $\leq 1 \mu$, with fibrils planarly arranged as a network or nonwoven fabric and laminated in a layer have thermal linear expansion coefficient, at 200-300°, $\pm 50 + 10^{-6}/^\circ$ and 30-95% vacant spaces and

- are useful in the manufacture of **battery separators**. These films are manufd by (a) forming a film-like material from a solution containing 1-10% of a para-oriented aromatic polyamide [such as poly(**p-phenyleneterephthalamide**)] having an inherent viscosity of 1.0-2.8 dL/g and 1-10% of a chloride of an alkali metal or an alkali earth metal in a polar amide or polar urea solvent; (b) maintaining the film-like material at >20° or at <-5° to deposit the para-oriented aromatic polyamide; and (c) immersing the film-like material in an aqueous or alc. solution to elute the solvent and chloride of the alkali metal or alkali earth metal, then drying to obtain the para-oriented aromatic polyamide porous film. The film has uniformity and fine vacant spaces, which cannot be accomplished by a nonwoven fabric, and the properties such as high heat resistance, high rigidity, high strength, etc.
- ST para arom polyamide porous film manuf; polar solvent polyamide porous film manuf; urea deriv solvent polyamide porous film manuf; amide solvent polyamide porous film manuf; metal chloride additive polyamide porous film manuf; **battery separator** polyamide porous film; polyphenyleneterephthalamide porous film manuf
- IT Secondary **battery separators**
(aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT Polyamides, uses
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)
(aromatic; aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT Porous materials
(films; aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT Alkali metal chlorides
Alkaline earth chlorides
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(leachable filler; aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT Amides, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(leachable solvent; aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT Polar solvents
(leachable; aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT Films
Plastic films
(porous; aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT **24938-64-5P, p-Phenylenediamine-terephthaloyl chloride copolymer, sru 26125-61-1P, p-Phenylenediamine-terephthaloyl chloride copolymer**
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)
(aromatic para-polyamide porous films for manufacture of **batter separators**)
- IT **24991-08-0, Poly(p-benzamide) 25136-77-0 27289-80-1 27307-20-6, Poly(p-phenylene-2,6-**

naphthalenedicarboxamide) 27554-68-3, 2-Chloro-**p-phenylenediamine**-terephthalic acid copolymer **29153-47-7**, 4,4'-Diaminobenzanilide-terephthalic acid copolymer 37357-07-6 **65205-95-0**, 4,4'-Biphenyldicarboxylic acid-1,4-phenylenediamine copolymer, sru 71029-66-8, 2,6-Dichloro-**p-phenylenediamine**-**p-phenylenediamine**-terephthalic acid copolymer **88417-35-0**, 4,4'-Biphenylenedicarboxylic acid-**p-phenylenediamine** copolymer

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(aromatic para-polyamide porous films for manufacture of **batter separators**)

IT 7447-41-8, Lithium chloride, uses 10043-52-4, Calcium chloride, uses RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(leachable filler; aromatic para-polyamide porous films for manufacture of **batter separators**)

IT 68-12-2, DMF, uses 127-19-5, N,N-Dimethylacetamide 632-22-4, Tetramethylurea 872-50-4, NMP, uses RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(leachable solvent; aromatic para-polyamide porous films for manufacture of **batter separators**)

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD

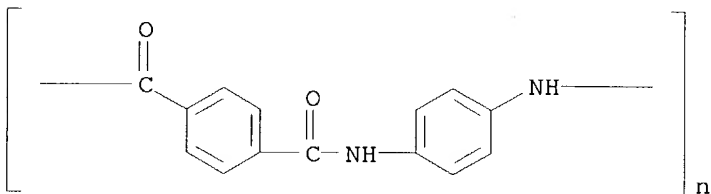
RE

(1) Takahashi; US 5442003 1995 HCAPLUS

IT **24938-64-5P**, **p-Phenylenediamine**-terephthaloyl chloride copolymer, sru RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)
(aromatic para-polyamide porous films for manufacture of **batter separators**)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



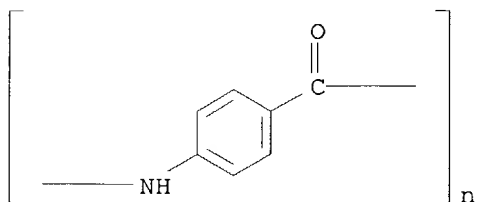
IT **24991-08-0**, Poly(p-benzamide) **25136-77-0** **29153-47-7**, 4,4'-Diaminobenzanilide-terephthalic acid copolymer **65205-95-0**, 4,4'-Biphenyldicarboxylic acid-1,4-phenylenediamine copolymer, sru **88417-35-0**, 4,4'-Biphenylenedicarboxylic acid-**p-phenylenediamine** copolymer

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(aromatic para-polyamide porous films for manufacture of **batter separators**)

RN 24991-08-0 HCAPLUS

CN Poly(imino-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



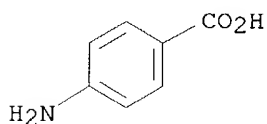
RN 25136-77-0 HCAPLUS

CN Benzoic acid, 4-amino-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 150-13-0

CMF C7 H7 N O2



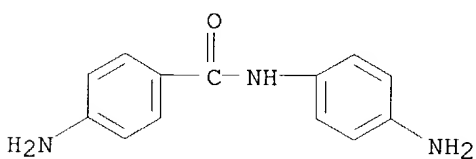
RN 29153-47-7 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 4-amino-N-(4-aminophenyl)benzamide (9CI) (CA INDEX NAME)

CM 1

CRN 785-30-8

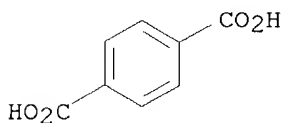
CMF C13 H13 N3 O



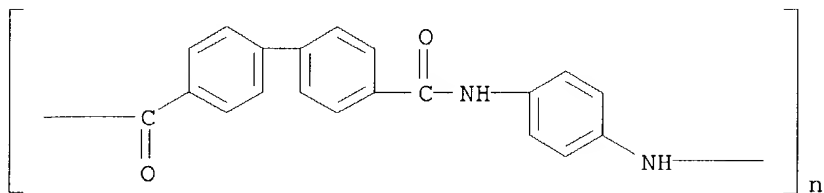
CM 2

CRN 100-21-0

CMF C8 H6 O4



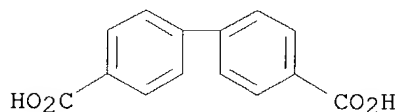
RN 65205-95-0 HCAPLUS
 CN Poly(imino-1,4-phenyleneiminocarbonyl[1,1'-biphenyl]-4,4'-diylcarbonyl)
 (9CI) (CA INDEX NAME)



RN 88417-35-0 HCAPLUS
 CN [1,1'-Biphenyl]-4,4'-dicarboxylic acid, polymer with 1,4-benzenediamine
 (9CI) (CA INDEX NAME)

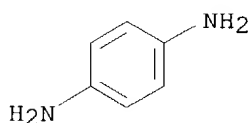
CM 1

CRN 787-70-2
 CMF C14 H10 O4



CM 2

CRN 106-50-3
 CMF C6 H8 N2



L20 ANSWER 39 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:790542 HCAPLUS
 DN 130:84012
 ED Entered STN: 17 Dec 1998
 TI Porous para aramid based membranes, **battery separators**
 from the membranes, and secondary lithium batteries
 IN Shinohara, Yasuo; Tsujihon, Keishi; Tatenō, Tatsuo
 PA Sumitomo Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08J009-00
 ICS B32B005-32; C08J009-28; C08L077-06; C08L101-00; H01M002-16;

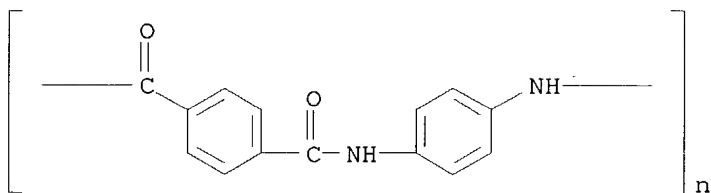
H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10324758	A2	19981208	JP 1998-75644	19980324
PRAI	JP 1997-73716		19970326		
AB	The membranes have para aramid coated and/or filled in fiber and/or pulp substrates.				
ST	secondary lithium battery separator amide membrane;				
IT	battery separator fiber para amide membrane				
IT	Polyolefins				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)				
	(porous membranes containing para aramid and polyolefin particles on and in fiber substrates for separators in secondary lithium batteries)				
IT	Cellulose pulp				
	Secondary battery separators				
	(porous membranes containing para aramid on and in fiber and pulp substrates for separators in secondary lithium batteries)				
IT	Vinal fibers				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)				
	(porous membranes containing para aramid on and in fiber and pulp substrates for separators in secondary lithium batteries)				
IT	Glass fibers, uses				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)				
	(porous membranes containing para aramid on and in glass fiber substrates for separators in secondary lithium batteries)				
IT	Polyester fibers, uses				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)				
	(porous membranes containing para aramid on and in polyester fiber substrates for separators in secondary lithium batteries)				
IT	24938-64-5P , Poly(p-phenylene terephthalamide)				
	25035-37-4P , Poly(p-phenylene terephthalamide)				
	RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)				
	(porous membranes containing para aramid on and in fiber and pulp substrates for separators in secondary lithium batteries)				
IT	24938-64-5P , Poly(p-phenylene terephthalamide)				
	25035-37-4P , Poly(p-phenylene terephthalamide)				
	RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)				
	(porous membranes containing para aramid on and in fiber and pulp substrates for separators in secondary lithium batteries)				
RN	24938-64-5 HCAPLUS				
CN	Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA				

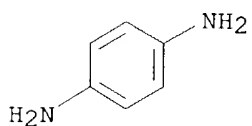
INDEX NAME)



RN 25035-37-4 HCAPLUS
CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

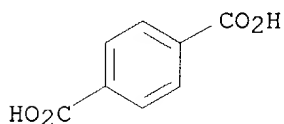
CM 1

CRN 106-50-3
CMF C6 H8 N2



CM 2

CRN 100-21-0
CMF C8 H6 O4



L20 ANSWER 40 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:735513 HCAPLUS
DN 130:27258
ED Entered STN: 19 Nov 1998
TI Poly(butylene terephthalate)-based battery gaskets and the batteries
IN Kondo, Koichi; Yamada, Takuji
PA Fuji Film Celltec K. K., Japan; Fuji Photo Film Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-08
ICS C08L067-03
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAN.CNT 1

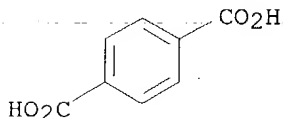
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10302737	A2	19981113	JP 1997-104365	19970422
PRAI	JP 1997-104365		19970422		
AB	The gaskets, for sealing between metal case and metal electrode terminal caps in batteries, contain poly(butylene terephthalate) as the main component. The batteries are preferably nonaq. electrolyte batteries. The gaskets prevents electrolyte leakage from the batteries.				
ST	polybutylene terephthalate gasket nonaq electrolyte battery				
IT	Secondary batteries (lithium; poly(butylene terephthalate)-based gaskets for secondary batteries)				
IT	Gaskets (poly(butylene terephthalate)-based gaskets for secondary batteries)				
IT	Polyesters, uses RL: DEV (Device component use); USES (Uses) (poly(butylene terephthalate)-based gaskets for secondary batteries)				
IT	26062-94-2 , Poly(butylene terephthalate) RL: DEV (Device component use); USES (Uses) (poly(butylene terephthalate)-based gaskets for secondary batteries)				
IT	24968-12-5 , Poly(butylene terephthalate) RL: DEV (Device component use); USES (Uses) (poly(butylene terephthalate)-based gaskets for secondary nonaq. batteries)				
IT	26062-94-2 , Poly(butylene terephthalate) RL: DEV (Device component use); USES (Uses) (poly(butylene terephthalate)-based gaskets for secondary batteries)				
RN	26062-94-2 HCAPLUS				
CN	1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)				
CM	1				
CRN	110-63-4				
CMF	C4 H10 O2				

HO-(CH₂)₄-OH

CM 2

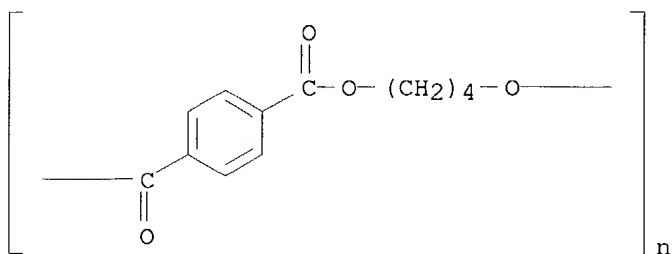
CRN 100-21-0

CMF C8 H6 O4



IT **24968-12-5**, Poly(butylene terephthalate)
RL: DEV (Device component use); USES (Uses)
(poly(butylene terephthalate)-based **gaskets** for secondary

nonaq. **batteries**)
 RN 24968-12-5 HCAPLUS
 CN Poly(oxy-1,4-butanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 41 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:665953 HCAPLUS
 DN 129:278453
 ED Entered STN: 21 Oct 1998
 TI Nonaqueous electrolyte batteries
 IN Tsukamoto, Hisashi; Komatsu, Shigeo
 PA Japan Storage Battery Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M010-40
 ICS H01M002-16
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10275634	A2	19981013	JP 1997-80535	19970331
PRAI	JP 1997-80535		19970331		

AB The batteries use porous separators having thickness 1-17 μm and composed of an inorg. materials decomposing at $\geq 180^\circ$ and/or an org material m. $\geq 180^\circ$. The inorg. material is a ceramic material, e.g., MgO , SiO_2 , and/or ZnO ; the organic materials is polyimide, polyamide polyimide, and/or poly(ethylene terephthalate); and the separator may contain a material, preferably a thermoplastic and/or wax m. $\leq 180^\circ$, filled in its pores. The batteries are preferably secondary lithium batteries.

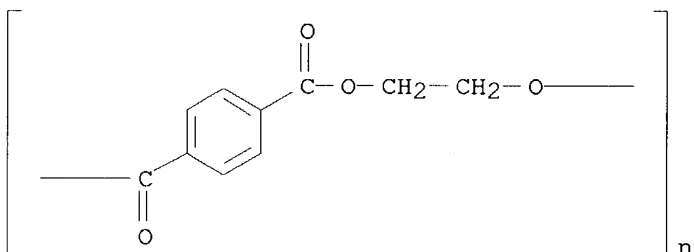
ST battery polymer inorg compd composite separator

IT Secondary battery separators
 (composite separators containing inorg. **materials** and **polymers** for secondary lithium batteries)

IT Polyesters, uses
 Polyimides, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (composite separators containing inorg. **materials** and **polymers** for secondary lithium batteries)

IT Polyimides, uses
 Polyimides, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PROC (Process); USES (Uses)
 (polyamide-; composite separators containing inorg. **materials** and
polymers for secondary lithium batteries)
 IT Polyamides, uses
 Polyamides, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (polyimide-; composite separators containing inorg. **materials** and
polymers for secondary lithium batteries)
 IT 1309-48-4, Magnesia, uses 1314-13-2, Zinc oxide, uses 7631-86-9,
 Silica, uses **25038-59-9**, Poly(ethylene terephthalate), uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (composite **separators** containing inorg. **materials** and
polymers for secondary lithium **batteries**)
 IT **25038-59-9**, Poly(ethylene terephthalate), uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (composite **separators** containing inorg. **materials** and
polymers for secondary lithium **batteries**)
 RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX
 NAME)



L20 ANSWER 42 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:618475 HCAPLUS
 DN 129:290925
 ED Entered STN: 30 Sep 1998
 TI Hydroxyl group-terminated para-oriented aromatic polyamides and porous
 films made from them
 IN Takahashi, Tsutomu; Sato, Hiroyuki; Kumada, Hiroaki
 PA Sumitomo Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08G069-48
 ICS C08G069-32; C08J005-18; C08J005-24; C08J009-26; H01B003-30;
 H01M002-16
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 52, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10251404	A2	19980922	JP 1997-84326	19970317

JP 3378460 B2 20030217
 PRAI JP 1997-84326 19970317

- AB The polyamides with low moisture absorption and good stiffness and resistance to heat, useful for elec. insulating prepregs, **battery separators**, etc., are manufactured by the polycondensation of p-oriented aromatic diamines and p-oriented aromatic dicarboxylic dihalides in the presence of a 1-10% solution of alkali or alkaline earth metal halide in a polar amide or urea solvent and HO-containing aromatic amine compds. as termination agents at -20° to 50°. The films are constituted of fibrils having diameter of <1 µm in layers of networks or nonwoven and have porosity of 30-95%. Thus, adding terephthaloyl chloride 116.0 to mixture of **p-phenylenediamine** 59.6, 4-amino-m-cresol 4.9 and CaCl₂ 131.2 predissolved in N-methyl-2-pyrrolidone 2200 g at 20±2° over 10 increments at 5 min intervals, mixing in vacuo and maturing gave a polyamide. Coating a 2.5% solution of the polyamide in N-methyl-2-pyrrolidone on a glass surface and immediately heating the coated film in an oven saturated with water vapor at 80° gave a porous film which was detached, washed, sandwiched between 2 m-aramid felts, supported on a 3-mm Al plate, covered with vacuum bag, sealed, vacuumed and heated at 120° for 4 to give a porous film with thickness 43.0 µm, porosity 42%, water absorption 13%, and Cl ion content 150 ppm.
- ST prepreg manuf porous para polyamide film; arom polyamide fibril film prepreg manuf; heat resistance prepreg manuf aramid film; low absorption prepreg manuf aramid film; hydroxyl terminated aramid film **battery separator**
- IT Polyamides, uses
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (aromatic; hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them)
- IT Porous materials
 (films; hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them)
- IT Epoxy resins, uses
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (hydroxyl group-terminated para-oriented aromatic polyamide porous films for manufacture prepregs or separators)
- IT Secondary batteries
 (hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them for use in)
- IT Films
 (porous; hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them)
- IT Reinforced plastics
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (prepregs; hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them)
- IT 2835-99-6DP, p-Amino-m-cresol, p-polyamides terminated with 26125-61-1DP, **p-Phenylenediamine**-terephthaloyl chloride copolymer, p-amino-m-cresol-terminated **214361-05-4P**
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them)
- IT 189363-79-9P, Dicyandiamide-Sumiepoxy ESB-500-Sumiepoxy ESCN 195-6

copolymer

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(impregnation varnish; hydroxyl group-terminated para-oriented aromatic polyamide porous films for manufacture prepreqs or separators)

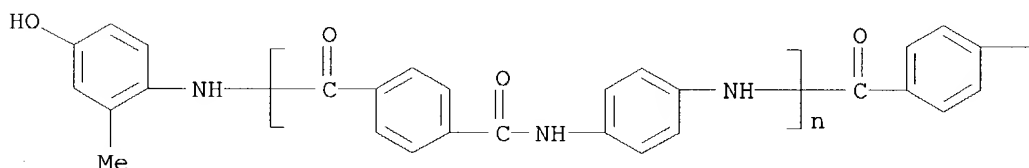
IT 214361-05-4P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(hydroxyl group-terminated para-oriented aromatic polyamides and porous films made from them)

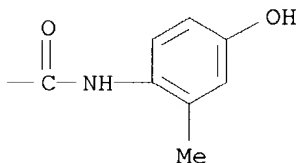
RN 214361-05-4 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl),
 α -[4-[(4-hydroxy-2-methylphenyl)amino]carbonyl]benzoyl]- ω -(4-
hydroxy-2-methylphenyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L20 ANSWER 43 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:594798 HCAPLUS

DN 129:219012

ED Entered STN: 18 Sep 1998

TI Manufacture of porous polymer film for secondary battery separator

IN Higuchi, Hiroyuki; Yamashita, Noboru; Watanabe, Yoshinobu; Samaru, Hajime;
Matsushima, Yoshikazu

PA Nitto Denko Corp., Japan

50 Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-16

ICS B32B005-32; C08J009-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10241659	A2	19980911	JP 1997-46061	19970228

PRAI JP 1997-46061 19970228

AB The title film is manufactured by the following steps: (1) heat-treating a crystalline polymer-based film-precursor containing a low-m.p. component and a high-m.p. component, (2) laminating the obtained precursor, (3) drawing the laminated precursor simultaneously to form a porous laminate, (4) treating the porous laminate for relaxation, and (5) separating the resulting laminate into films. Preferably, the low-m.p. component is polyethylene and the high-m.p. component is polypropylene. The obtained separator has good shape stability.

ST porous polymer film battery separator; polyethylene polypropylene porous film battery separator

IT Porous **materials**
(films; manufacture of porous **polymer** film for battery separator with shape stability in repeated use)

IT Secondary battery separators
(manufacture of porous polymer film for battery separator with shape stability in repeated use)

IT Polyesters, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manufacture of porous polymer film for battery separator with shape stability in repeated use)

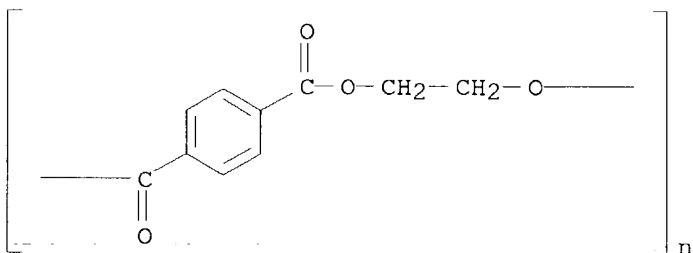
IT Films
(porous; manufacture of porous polymer film for battery separator with shape stability in repeated use)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene **25038-59-9**, Polyethylene terephthalate, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manufacture of porous polymer film for **battery separator** with shape stability in repeated use)

IT **25038-59-9**, Polyethylene terephthalate, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manufacture of porous polymer film for **battery separator** with shape stability in repeated use)

RN 25038-59-9 HCAPLUS

CN Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



L20 ANSWER 44 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:118798 HCAPLUS

DN 128:168921

ED Entered STN: 27 Feb 1998

TI Heat-resistant thin porous paper substitutes with low basis weight

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

IN Wakai, Makoto; Fujimatsu, Terumi; Takaguchi, Shinichiro
 PA Oji Paper Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM D21H013-26
 ICS D21H013-24; D21H013-40
 CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)
 Section cross-reference(s): 40, 52

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10046484	A2	19980217	JP 1996-200842	19960730
PRAI	JP 1996-200842		19960730		

AB The paper substitutes are prepared by mixing mainly para-aramid fibers and/or polyarylate fibers with oblong glass fibers and forming paper substitutes from the compns. by a wet papermaking method and optionally pressing and heat-treating the paper substitutes. The paper substitutes are useful for **battery separators**, heat-resistant filters, thermal insulators, and elec. insulators (no data). A composition containing 60 parts para-aramid pulp (Twaron 1097) and 40 parts glass fibers with oblongness ratio (ratio of length of short axis to length of long axis) 1:5 was made into a sheet by a papermaking method, impregnated with a solution containing 1% Dicfine EN-0270 (epoxy resin), dried, cured 10 min at 150°, impregnated with a solution containing 6% Univeks N (phenolic resin), and cured 60 min at 200° to give a heat-resistant porous paper substitute with basis weight 10.6 g/m2.

ST paper substitute porous heat resistant; aramid fiber paper substitute heat resistant; glass fiber paper substitute heat resistant; polyarylate fiber paper substitute heat resistant; **battery separator** heat resistant paper substitute; filter porous heat resistant paper substitute; thermal insulator paper substitute heat resistant

IT Electric insulators
 Primary **battery separators**
 Secondary **battery separators**
 Thermal insulators
 ((no data); heat-resistant thin porous paper substitutes comprising aramid fibers and/or polyarylate fibers and glass fibers with low basis weight)

IT Filters
 ((no data); heat-resistant thin porous paper substitutes comprising aramid fibers and/or polyarylate fibers and glass fibers with low basis weight for)

IT Polyamide fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (aramid, para-,; heat-resistant thin porous paper substitutes comprising aramid fibers and/or polyarylate fibers and glass fibers with low basis weight)

IT Polyester fibers, uses
 Polyester fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (aromatic; heat-resistant thin porous paper substitutes comprising aramid fibers and/or polyarylate fibers and glass fibers with low basis weight)

IT Epoxy resins, uses
 Phenolic resins, uses

RL: TEM (Technical or engineered material use); USES (Uses)
 (heat resistance improving impregnants; heat-resistant thin porous
 paper substitutes comprising aramid fibers and/or polyarylate fibers
 and glass fibers)

IT Heat-resistant materials
 Paper substitutes
 (heat-resistant thin porous paper substitutes comprising aramid fibers
 and/or polyarylate fibers and glass fibers with low basis weight)

IT Polyester fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
 (Technical or engineered material use); PROC (Process); USES (Uses)
 (hydroxybenzoic acid-hydroxynaphthoic acid; heat-resistant thin porous
 paper substitutes comprising aramid fibers and/or polyarylate fibers
 and glass fibers with low basis weight)

IT Polyamide fibers, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
 (Technical or engineered material use); PROC (Process); USES (Uses)
 (**p-phenylenediamine**-terephthalic acid;
 heat-resistant thin porous paper substitutes comprising aramid fibers
 and/or polyarylate fibers and glass fibers with low basis weight)

IT 25212-83-3, Zaikthene A-TH
 RL: TEM (Technical or engineered material use); USES (Uses)
 (chemical resistance improving impregnant; heat-resistant thin porous
 paper substitutes comprising aramid fibers and/or polyarylate fibers
 and glass fibers)

IT 56802-83-6, Phenylenediamine-terephthalic acid copolymer, sru
59158-39-3, Phenylenediamine-terephthalic acid copolymer
 90622-02-9, Hydroxybenzoic acid-hydroxynaphthoic acid copolymer
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
 (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber; heat-resistant thin porous paper substitutes comprising aramid
 fibers and/or polyarylate fibers and glass fibers with low basis weight)

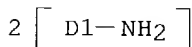
IT 121547-73-7, Dicfine EN 0270 127362-32-7, Univeks N
 RL: TEM (Technical or engineered material use); USES (Uses)
 (heat resistance improving impregnant; heat-resistant thin porous paper
 substitutes comprising aramid fibers and/or polyarylate fibers and
 glass fibers)

IT **59158-39-3**, Phenylenediamine-terephthalic acid copolymer
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
 (Technical or engineered material use); PROC (Process); USES (Uses)
 (fiber; heat-resistant thin porous paper substitutes comprising aramid
 fibers and/or polyarylate fibers and glass fibers with low basis weight)

RN 59158-39-3 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with benzenediamine (9CI) (CA INDEX
 NAME)

CM 1

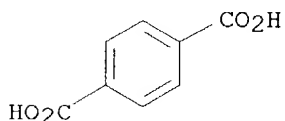
CRN 25265-76-3
 CMF C6 H8 N2
 CCI IDS



CM 2

CRN 100-21-0

CMF C8 H6 O4



L20 ANSWER 45 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:35907 HCAPLUS
 DN 128:156622
 ED Entered STN: 22 Jan 1998
 TI Porous paraaramid laminated films for **battery separators**
 IN Tsujimoto, Yoshifumi; Shinohara, Yasuo
 PA Sumitomo Chemical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B32B027-34
 ICS B29C073-22; B32B005-32; C08J009-28; H01M002-16
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10006453	A2	19980113	JP 1996-161540	19960621
PRAI	JP 1996-161540		19960621		

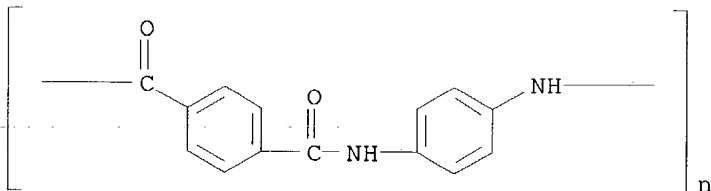
AB The separators have a shape retaining porous paraaramid layer and ≥ 1 porous thermoplastic layers, which melt at high temps. to clog the pores in the paraaramid layer. The thermoplastic layer may be formed from a solution of the thermoplastic dispersed in an organic solvent, and the paraaramid layer formed from a paraaramid solution obtained by condensation of a para aromatic diamine and a para aromatic dicarboxylic acid halide, in a polar amide or urea solution containing alkali metal halide or alkaline earth halide.

ST **battery separator** paraaramid thermoplastic porous laminate

IT Secondary **battery separators**
 (aromatic polyamide-coated porous films and **battery separators** thereof)

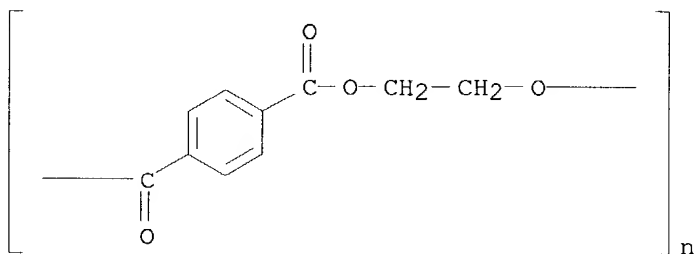
IT Polyamides, uses

- RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(aromatic; porous paraaramid-porous thermoplastic laminated films for **battery separators**)
- IT Primary **battery separators**
(porous paraaramid-porous thermoplastic laminated films for **battery separators**)
- IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films with polyethylene terephthalate cores for **battery separators**)
- IT 26125-61-1P, **p-Phenylenediamine**-terephthalic acid dichloride copolymer
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films for **battery separators**)
- IT **24938-64-5P, p-Phenylenediamine**-terephthalic acid dichloride copolymer, sru
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films for **battery separators**)
- IT 9002-88-4, Chemiparl M 200 131461-84-2, Chemiparl W 500
RL: TEM (Technical or engineered material use); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films for **battery separators**)
- IT **25038-59-9**, Polyethylene terephthalate, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films with polyethylene terephthalate cores for **battery separators**)
- IT **24938-64-5P, p-Phenylenediamine**-terephthalic acid dichloride copolymer, sru
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films for **battery separators**)
- RN 24938-64-5 HCAPLUS
- CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



- IT **25038-59-9**, Polyethylene terephthalate, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(porous paraaramid-porous thermoplastic laminated films with polyethylene terephthalate cores for **battery**)

separators)
 RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



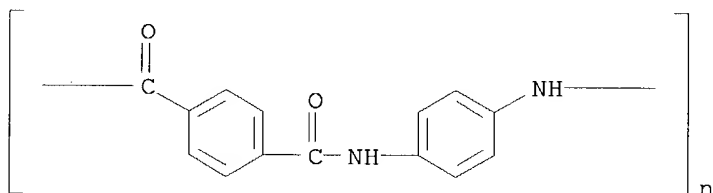
L20 ANSWER 46 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:254080 HCAPLUS
 DN 126:240729
 ED Entered STN: 19 Apr 1997
 TI **Batteries** using insulator particle layer **separators**
 and manufacture of the **batteries**
 IN Yamashita, Masaya; Oki, Shunsuke
 PA Asahi Kasei Kogyo Kabushiki Kaisha, Japan; Yamashita, Masaya; Oki, Shunsuke
 SO PCT Int. Appl., 73 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 IC ICM H01M002-16
 ICS H01M002-18; H01M010-40; H01M006-00
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9708763	A1	19970306	WO 1996-JP2414	19960828
	W: CA, CN, JP, KR, SG, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2226366	AA	19970306	CA 1996-2226366	19960828
	CA 2226366	C	20020521		
	EP 848435	A1	19980617	EP 1996-928681	19960828
	R: DE, FR, GB				
	CN 1191041	A	19980819	CN 1996-195596	19960828
	CN 1134078	B	20040107		
	TW 411636	B	20001111	TW 1996-85110568	19960828
	JP 3253632	B2	20020204	JP 1997-510124	19960828
PRAI	JP 1995-219036	A	19950828		
	WO 1996-JP2414	W	19960828		

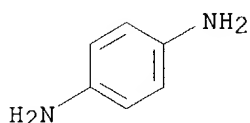
AB The **batteries** use **separator** comprising ≥ 1 insulating particle agglomerate layer having a 3-dimensional network structure forming ion permeable pores for the separators. The batteries are prepared by applying a dispersion containing insulator particles and a binder on the cathode and/or anode active mass layer and removing the solvent from the dispersion to form the separator. The batteries have good high rate discharge performance.

ST **battery separator** insulator powder layer manuf

- IT Zeolites (synthetic), uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (aluminosilicate; insulator particle layer separators and manufacture of the **separators** for secondary lithium **batteries**)
- IT Fluoro rubber
 RL: MOA (Modifier or additive use); USES (Uses)
 (binders in insulator particle layer separators and manufacture of the **separators** for secondary lithium **batteries**)
- IT Secondary **battery separators**
 (insulator particle layer **separators** and their manufacture for secondary lithium batteries)
- IT 9004-32-4, Cmc 24937-79-9, Poly(vinylidene fluoride)
 RL: MOA (Modifier or additive use); USES (Uses)
 (binders in insulator particle layer separators and manufacture of the **separators** for secondary lithium **batteries**)
- IT 9002-88-4, Polyethylene 24938-64-5, Poly(p-phenylene terephthalamide) 25035-37-4, Poly(p-phenylene terephthalamide)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (insulator particle layer **separators** and manufacture of the **separators** for secondary lithium **batteries**)
- IT 1344-28-1, α -Alumina, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (insulator particle layer separators and their manufacture for secondary lithium batteries)
- IT 24938-64-5, Poly(p-phenylene terephthalamide)
 25035-37-4, Poly(p-phenylene terephthalamide)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (insulator particle layer **separators** and manufacture of the **separators** for secondary lithium **batteries**)
- RN 24938-64-5 HCAPLUS
- CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



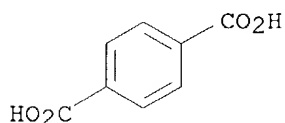
- RN 25035-37-4 HCAPLUS
- CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)
- CM 1
- CRN 106-50-3
- CMF C6 H8 N2



CM 2

CRN 100-21-0

CMF C8 H6 O4



L20 ANSWER 47 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:223936 HCAPLUS
 DN 126:213328
 ED Entered STN: 07 Apr 1997
 TI Heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength and their manufacture for **battery separators**
 IN Takahashi, Tsutomu; Tateno, Tatsuo; Tsujimoto, Yoshifumu
 PA Sumitomo Chemical Company, Limited, Japan
 SO Eur. Pat. Appl., 23 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C08J009-28
 ICS C08J005-18; C08J003-09; H01M002-16
 ICI C08L077-10
 CC 40-10 (Textiles and Fibers)
 Section cross-reference(s): 52
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 757071	A2	19970205	EP 1996-111605	19960718
	EP 757071	A3	19970219		
	EP 757071	B1	20030416		
	R: DE, FR, GB, IT, NL				
	JP 09208736	A2	19970812	JP 1996-191325	19960701
	JP 3279189	B2	20020430		
	CA 2181421	AA	19970119	CA 1996-2181421	19960717
	TW 381105	B	20000201	TW 1996-85108657	19960717
PRAI	JP 1995-181953	A	19950718		
	JP 1995-181955	A	19950718		
	JP 1995-338172	A	19951201		

AB The porous sheets are prepared by forming filmlike materials from solns. containing 1-10% para-aromatic polyamides (A) having inherent viscosity (η ; 0.5 g in 100 mL 96-98% H₂SO₄, at 30°) 1.0-2.8 dL/g and 1-10% alkali metal chlorides or alkaline earth metal chlorides in polar amide solvents or polar urea solvents, keeping the materials at $\geq 20^\circ$ or $\leq -5^\circ$ or treating the materials with coagulating solns. to deposit A, immersing the materials in aqueous or alc. solns. to elute the

solvents and and alkali metal chlorides or alkaline earth metal chlorides, and drying the materials to form a layer comprising laminates of networks or nonwovens of A fibrils having diameter $\leq 1\mu\text{m}$ and exhibiting linear coefficient of expansion at $200\text{--}300^\circ \pm 50 \times 10^{-6}/^\circ\text{C}$ and vacant space content 30-95%. A solution containing 2.8% **p-phenylenediamine-terephthaloyl chloride copolymer (I)** with η 1.97 dL/g and 5.8% CaCl_2 in N-methyl-2-pyrrolidone was applied onto a glass plate to form a film, kept in a refrigerator for 1 h at -20° , immersed in H_2O , and dried to give a sheet $84.2\mu\text{m}$ thick and having porosity 84% and comprising I fibrils with diameter $0.1\text{--}0.3\mu\text{m}$. The sheet was suitable as a **battery separator** without causing discharge cycle deterioration.

- ST aramid para fiber nonwoven **battery separator**;
polyphenyleneterephthalamide fiber nonwoven **battery separator**; arom polyamide fiber nonwoven **battery separator**; heat resistance para aramid fiber nonwoven; fibrillar aramid fiber nonwoven **battery separator**
- IT Polyamide fibers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(aminobenzoic acid; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)
- IT Polyamide fibers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(aramid; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)
- IT Polyamide fibers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(biphenylenedicarboxylic acid-phenylenediamine; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)
- IT Polyamide fibers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(chlorophenylenediamine-terephthalic acid; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)
- IT Polyamide fibers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(diaminobenzanilide-terephthalic acid; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)
- IT Polyamide fibers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(dichlorophenylenediamine-phenylenediamine-terephthalic acid; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)
- IT Polyamide fibers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fabrics; manufacture of heat-resistant porous sheets of para-aromatic

polyamide fibrils with high strength for **battery separators**)

IT Primary **battery separators**
Secondary **battery separators**
(manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for)

IT Heat-resistant materials
Nonwoven fabrics
(manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT Polyamide fibers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(naphthalenedicarboxylic acid-phenylenediamine; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT Polyamide fibers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(phenylenediamine-terephthaloyl chloride; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT Solvents
(polar amides; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT Amides, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polar, solvents; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT Alkali metal chlorides
Alkaline earth chlorides
RL: NUU (Other use, unclassified); USES (Uses)
(pore formers; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT **24938-64-5P**, Poly(**p-phenyleneterephthalamide**)
26125-61-1P, **p-Phenylenediamine**-terephthaloyl dichloride copolymer
RL: DEV (Device component use); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)
(fiber; manufacture of heat-resistant porous sheets of para-aromatic polyamide fibrils with high strength for **battery separators**)

IT **24991-08-0**, Poly(**p-benzamide**) **25136-77-0**, 4-Aminobenzoic acid homopolymer **27289-80-1**, 2,6-Naphthalenedicarboxylic acid-**p-phenylenediamine** copolymer **27307-20-6**, 2,6-Naphthalenedicarboxylic acid-**p-phenylenediamine** copolymer, sru **27554-68-3**, 2-Chloro-**p-phenylenediamine**-terephthalic acid copolymer **29153-47-7**, 4,4'-Diaminobenzanilide-terephthalic acid copolymer **37357-07-6** **65205-95-0** **71029-66-8**, 2,6-Dichloro-**p-phenylenediamine**-**p-phenylenediamine**-terephthalic acid copolymer **88417-35-0**

, 4,4'-Biphenylenedicarboxylic acid-**p-phenylenediamine**
copolymer

RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)

(fiber; manufacture of heat-resistant porous sheets of para-aromatic
polyamide

fibrils with high strength for **battery separators**)

IT 7447-41-8, Lithium chloride, uses 10043-52-4, Calcium chloride, uses

RL: NUU (Other use, unclassified); USES (Uses)

(pore former; manufacture of heat-resistant porous sheets of para-aromatic
polyamide fibrils with high strength for **battery**

separators)

IT 68-12-2, uses 127-19-5 632-22-4, Tetramethylurea 872-50-4,
N-Methyl-2-pyrrolidone, uses

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; manufacture of heat-resistant porous sheets of para-aromatic
polyamide fibrils with high strength for **battery**

separators)

IT **24938-64-5P**, Poly(**p-phenyleneterephthalamide**)

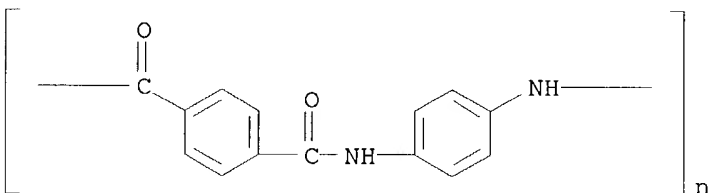
RL: DEV (Device component use); IMF (Industrial manufacture); PEP
(Physical, engineering or chemical process); PRP (Properties); PREP
(Preparation); PROC (Process); USES (Uses)

(fiber; manufacture of heat-resistant porous sheets of para-aromatic
polyamide

fibrils with high strength for **battery separators**)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA
INDEX NAME)



IT **24991-08-0**, Poly(**p-benzamide**) **25136-77-0**, 4-Aminobenzoic
acid homopolymer **29153-47-7**, 4,4'-Diaminobenzanilide-
terephthalic acid copolymer **65205-95-0** **88417-35-0**,
4,4'-Biphenylenedicarboxylic acid-**p-phenylenediamine**
copolymer

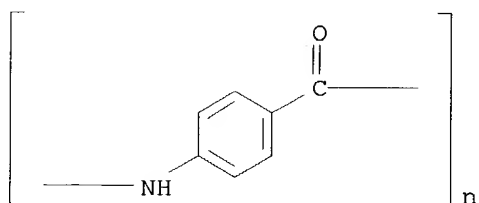
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)

(fiber; manufacture of heat-resistant porous sheets of para-aromatic
polyamide

fibrils with high strength for **battery separators**)

RN 24991-08-0 HCAPLUS

CN Poly(imino-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



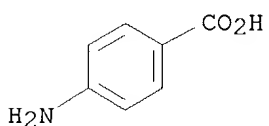
RN 25136-77-0 HCAPLUS

CN Benzoic acid, 4-amino-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 150-13-0

CMF C7 H7 N O2



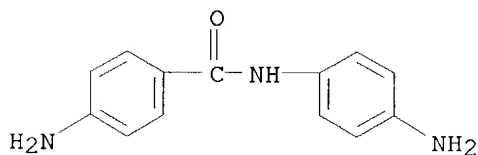
RN 29153-47-7 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 4-amino-N-(4-aminophenyl)benzamide (9CI) (CA INDEX NAME)

CM 1

CRN 785-30-8

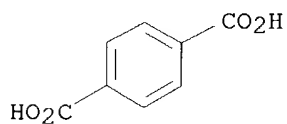
CMF C13 H13 N3 O



CM 2

CRN 100-21-0

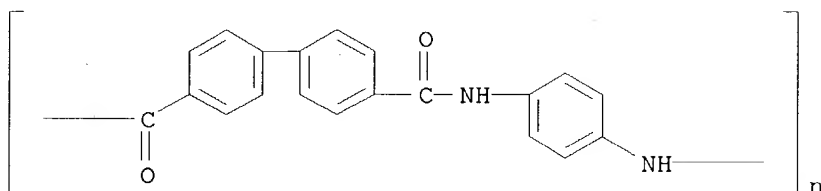
CMF C8 H6 O4



RN 65205-95-0 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl[1,1'-biphenyl]-4,4'-diylcarbonyl)

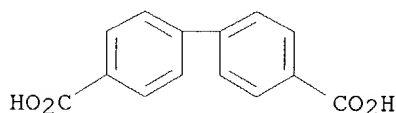
(9CI) (CA INDEX NAME)



RN 88417-35-0 HCAPLUS
 CN [1,1'-Biphenyl]-4,4'-dicarboxylic acid, polymer with 1,4-benzenediamine
 (9CI) (CA INDEX NAME)

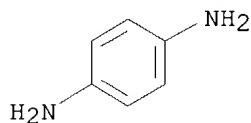
CM 1

CRN 787-70-2
 CMF C14 H10 O4



CM 2

CRN 106-50-3
 CMF C6 H8 N2

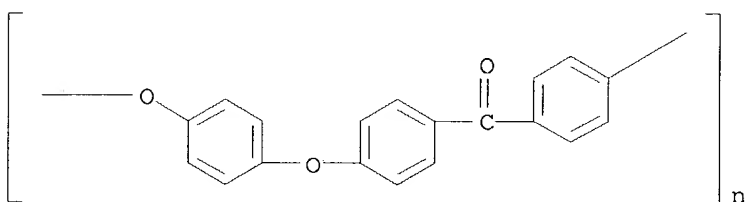


L20 ANSWER 48 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1996:738024 HCAPLUS
 DN 126:10024
 ED Entered STN: 16 Dec 1996
 TI Organic-electrolyte batteries
 IN Sano, Akihiro; Nishino, Shuichi; Daio, Fumio; Oguro, Shusuke; Kondo, Masatsugu
 PA Matsushita Electric Industrial Co., Ltd., Japan
 SO Eur. Pat. Appl., 20 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM H01M002-08
 ICS H01M002-02; H01M002-16; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 51

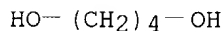
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 739046	A1	19961023	EP 1995-307009	19951003
	EP 739046	B1	20000315		
	R: DE, FR, GB				
	US 5656392	A	19970812	US 1995-538097	19951002
	JP 08321287	A2	19961203	JP 1995-261239	19951009
	US 5851693	A	19981222	US 1997-788082	19970122
PRAI	JP 1995-60767		19950320		
	US 1995-538097		19951002		
AB	A general purpose organic-electrolyte battery of high cost-performance, realizing long use and/or storage at >150° uses a separator made of a porous synthetic resin sheet m. ≥170° and a gasket made mainly or singly of thermoplastic resin having a continuous usable temperature of ≥150° and a sealant layer of blown asphalt.				
ST	battery org electrolyte synthetic resin separator ; gasket thermoplastic resin org electrolyte battery; sealant blown asphalt org electrolyte battery				
IT	Glass fibers, uses Polypropene fibers, uses RL: MOA (Modifier or additive use); USES (Uses) (blended in gaskets from thermoplastic resins for high-temperature organic-electrolyte batteries)				
IT	Primary battery separators Secondary battery separators (from porous synthetic resins with high m.p.)				
IT	Gaskets (from thermoplastic resins with sealant layer of blown asphalt for high-temperature organic-electrolyte batteries)				
IT	Asphalt RL: TEM (Technical or engineered material use); USES (Uses) (gasket of organic-electrolyte batteries with sealant layer of blown)				
IT	Polyketones Polyketones RL: DEV (Device component use); USES (Uses) (polyether-; gaskets with sealant layer of blown asphalt for high-temperature organic-electrolyte batteries)				
IT	Polyethers, uses Polyethers, uses RL: DEV (Device component use); USES (Uses) (polyketone-; gaskets with sealant layer of blown asphalt for high-temperature organic-electrolyte batteries)				
IT	Fluoropolymers, uses Polythiophenylenes RL: DEV (Device component use); USES (Uses) (separators for high-temperature organic-electrolyte batteries)				
IT	39286-65-2	72893-47-1	96421-68-0		
	RL: TEM (Technical or engineered material use); USES (Uses) (container for high-temperature organic-electrolyte battery)				
IT	9002-88-4, Polyethylene RL: MOA (Modifier or additive use); USES (Uses) (fibers blended in gaskets from thermoplastic resins for high-temperature organic-electrolyte batteries)				
IT	31694-16-3 , PEEK RL: DEV (Device component use); USES (Uses)				

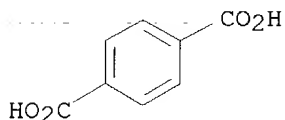
(gaskets with sealant layer of blown asphalt for high-temperature organic-electrolyte **batteries**)
 IT 9002-84-0, PTFE 25212-74-2, Poly(**p**-phenylene sulfide) **26062-94-2**, Poly(butylene terephthalate)
 RL: DEV (Device component use); USES (Uses)
 (separators for high-temperature organic-electrolyte **batteries**)
 IT **31694-16-3**, PEEK
 RL: DEV (Device component use); USES (Uses)
 (gaskets with sealant layer of blown asphalt for high-temperature organic-electrolyte **batteries**)
 RN 31694-16-3 HCAPLUS
 CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylene carbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)



IT **26062-94-2**, Poly(butylene terephthalate)
 RL: DEV (Device component use); USES (Uses)
 (separators for high-temperature organic-electrolyte **batteries**)
 RN 26062-94-2 HCAPLUS
 CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)
 CM 1
 CRN 110-63-4
 CMF C4 H10 O2



CM 2
 CRN 100-21-0
 CMF C8 H6 O4



L20 ANSWER 49 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1996:179014 HCAPLUS

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

DN 124:207253
 ED Entered STN: 28 Mar 1996
 TI **Batteries** with improved **separators**
 IN Yamashita, Masataka; Muraoka, Shigemitsu
 PA Ei Teii Batsuterii Kk, Japan; Asahi Chemical Ind
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M006-16
 ICS H01M002-16; H01M004-02; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07335228	A2	19951222	JP 1994-143827	19940602
PRAI	JP 1994-143827		19940602		

AB The batteries employ aramide composite films having ion conductivity and gas permeability ≥ 1000 s/100 mL (JIS P8117 Gurley method) as separators. Preferably, the batteries consist of cathodes containing $\text{Li}_x\text{MyNzO}_2$ (M = transition metals; N = nontransition metals; $0.05 \leq x \leq 1.10$; $0.85 \leq y \leq 1.00$; $0 \leq z \leq 0.10$), anodes containing Li, metal oxides, graphite, coke, etc., separators containing the aramide composite films containing Li ions., and nonaq. electrolyte solns. The batteries have high heat resistance.

ST **battery separator** aramide composite film

IT Coke
 RL: DEV (Device component use); USES (Uses)
 (anode; aramide composite films for **battery separators** for heat resistance)

IT Polyamides, uses
 RL: DEV (Device component use); USES (Uses)
 (aromatic, composite films, **separators**; aramide composite films for **battery separators** for heat resistance)

IT **Batteries**, secondary
 (**separators**, aramide composite films for **battery separators** for heat resistance)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; aramide composite films for **battery separators** for heat resistance)

IT 12190-79-3
 RL: DEV (Device component use); USES (Uses)
 (cathode; aramide composite films for **battery separators** for heat resistance)

IT **24938-64-5 25035-37-4, p-**
Phenylenediamine-terephthalic acid copolymer
 RL: DEV (Device component use); USES (Uses)
 (composite film, **separator**; aramide composite films for **battery separators** for heat resistance)

IT 554-13-2, Lithium carbonate 7447-41-8, Lithium chloride, uses
 25322-68-3, Polyethylene glycol
 RL: DEV (Device component use); USES (Uses)
 (composite films containing, **separators**; aramide composite films for **battery separators** for heat resistance)

IT **24938-64-5 25035-37-4, p-**

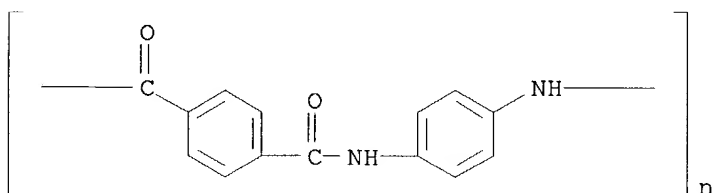
Phenylenediamine-terephthalic acid copolymer

RL: DEV (Device component use); USES (Uses)

(composite film, **separator**; aramide composite films for
battery separators for heat resistance)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA
INDEX NAME)



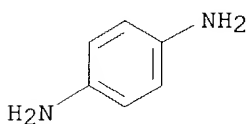
RN 25035-37-4 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA
INDEX NAME)

CM 1

CRN 106-50-3

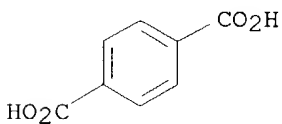
CMF C6 H8 N2



CM 2

CRN 100-21-0

CMF C8 H6 O4



L20 ANSWER 50 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:102519 HCAPLUS

DN 124:119674

ED Entered STN: 20 Feb 1996

TI Aromatic polyamide-based ion-conductive films and precursor film therefor

IN Muraoka, Shigemitsu; Hamada, Masami

PA Asahi Kasei Kogyo K K, Japan

SO PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DT Patent

LA Japanese
 IC ICM C08J005-18
 ICS C08L077-10; B32B027-34; H01B001-20
 ICA H01M006-18
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9531499	A1	19951123	WO 1995-JP958	19950518
	W: JP, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 760383	A1	19970305	EP 1995-918745	19950518
	EP 760383	B1	20020807		
	R: DE, FR, GB, NL				
	US 5834112	A	19981110	US 1997-737159	19970226
PRAI	JP 1994-103631	A	19940518		
	JP 1994-119768	A	19940601		
	WO 1995-JP958	W	19950518		
AB	The title films, with good heat resistance and mech. strength, useful as solid electrolytes for secondary alkaline batteries, etc., comprise 20-70% aromatic polyamides (e.g., p-phenylenediamine -terephthalic acid copolymer), electrolytes (e.g., LiCl, NaOH, LiNO ₃ , LiBF ₄), and solvents (e.g., polyethylene oxide, water, propylene carbonate-ethylene carbonate-γ-butyrolactone mixture) and optionally laminated with electrolyte-containing polymer layers (e.g., of polycarbonates).				
ST	arom polyamide film battery separator ; electrolyte arom polyamide battery separator ; lithium chloride arom polyamide film; sodium hydroxide arom polyamide film; nitrate lithium arom polyamide film; boron lithium fluoride arom polyamide film; heat resistance arom polyamide film; ion conductive arom polyamide film; polycarbonate arom polyamide laminate				
IT	Batteries, secondary Electric conductors Electrolytes (aromatic polyamide-based ion-conductive films and precursor film therefor)				
IT	Polycarbonates, uses RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses) (aromatic polyamide-based ion-conductive films and precursor film therefor)				
IT	Alkali metal compounds RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (electrolytes; aromatic polyamide-based ion-conductive films and precursor film therefor)				
IT	Polyamides, uses RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (aromatic, aromatic polyamide-based ion-conductive films and precursor film therefor)				
IT	1310-73-2, Sodium hydroxide, uses 7447-41-8, Lithium chloride, uses 7790-69-4, Lithium nitrate 14283-07-9 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (aromatic polyamide-based ion-conductive films and precursor film therefor)				
IT	24938-64-5, p-Phenylenediamine -terephthalic				

acid copolymer, SRU **25035-37-4, p-**

Phenylenediamine-terephthalic acid copolymer

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(aromatic polyamide-based ion-conductive films and precursor film therefor)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7732-18-5, Water, uses 25322-68-3, Polyethylene oxide

RL: NUU (Other use, unclassified); USES (Uses)

(solvents; aromatic polyamide-based ion-conductive films and precursor film therefor)

IT **24938-64-5, p-Phenylenediamine**-terephthalic

acid copolymer, SRU **25035-37-4, p-**

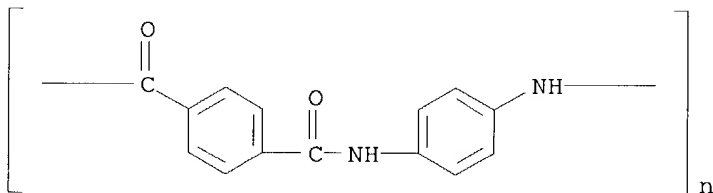
Phenylenediamine-terephthalic acid copolymer

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(aromatic polyamide-based ion-conductive films and precursor film therefor)

RN 24938-64-5 HCAPLUS

CN Poly(imino-1,4-phenyleneiminocarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



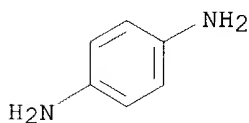
RN 25035-37-4 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

CRN 106-50-3

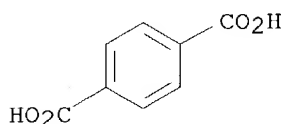
CMF C6 H8 N2



CM 2

CRN 100-21-0

CMF C8 H6 O4



L20 ANSWER 51 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1993:630073 HCAPLUS
 DN 119:230073
 ED Entered STN: 27 Nov 1993
 TI Permeation-selective separators, process for making them, and all-vanadium redox battery containing them
 IN Chieng, Sie Chung; Kazacos, Michael; Kazacos, Maria
 PA Unisearch Ltd., Australia
 SO PCT Int. Appl., 40 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM H01M002-16
 ICS C08J005-22
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9306626	A1	19930401	WO 1992-AU491	19920917
	W: AU, CA, DE, GB, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE				
	AU 9225795	A1	19930427	AU 1992-25795	19920917
PRAI	AU 1991-8424		19910917		
	WO 1992-AU491		19920917		
AB	The separators comprise a microporous sheet crosslinked with ≥ 1 ion-exchange material. The separators are prepared by placing a microporous sheet in contact with a solvent containing at least partly dissolved ≥ 1 ion-exchange material and ≥ 1 crosslinking agent for a sufficient time that ion-exchange materials and the crosslinking agent(s) are taken up by the pores of the sheet. The ion-exchange material is then crosslinked with the microporous separator to form the permeation-selective separator having greater permeation selectivity than the uncrosslinked microporous separator. The ion-exchange material is selected from an ion-exchange resin, a polyelectrolyte, and an ion-exchange resin crosslinked with a polyelectrolyte. The microporous separator comprises material selected from polystyrene, C2-16 polyolefins, Daramic and polypropylene material, PVC, poly(vinylidene chloride), natural or synthetic rubbers, etc.				
ST	vanadium redox battery separator; permeation selective separator battery; ion exchange resin crosslinked separator; polyelectrolyte crosslinked battery separator; polyolefin crosslinked battery separator				
IT	Wood Rubber, natural, uses Rubber, synthetic RL: USES (Uses) (separators from ion-exchange material and, manufacture of permeation-selective, for all-vanadium redox batteries)				
IT	Polyphosphoric acids Polysulfones, uses				

RL: USES (Uses)
 (separators from microporous polymers or rubbers and, manufacture of permeation-selective, for all-vanadium redox batteries)

IT Alkenes, polymers
 RL: USES (Uses)
 (polymers, C2-16, **polymers**, separators from ion-exchange **material** and, manufacture of permeation-selective, for all-vanadium redox batteries)

IT Batteries, secondary
 (separators, permeation selective all-vanadium redox, manufacture of)

IT 7631-86-9P, Silica, preparation
 RL: PREP (Preparation)
 (polyethylene filled with, separators from ion-exchange material and, manufacture of permeation-selective, for all-vanadium redox batteries)

IT 9002-84-0, PTFE 9002-85-1, Poly(vinylidene chloride) 9002-86-2, PVC 9002-89-5, Poly(vinyl alcohol) 9003-00-3, Acropor 9003-53-6, Polystyrene 9004-34-6D, Cellulose, esters 9004-70-0, Nitrocellulose 9005-25-8, Starch, miscellaneous
 RL: USES (Uses)
 (separators from ion-exchange material and, manufacture of permeation-selective, for all-vanadium redox batteries)

IT 9002-22-6, Amberlite IR-45 9002-23-7, Amberlite IR-120 9002-24-8, Amberlite IRA-400 9002-29-3, Amberlite IRC-50 9002-98-6 9003-01-4, Poly(acrylic acid) 9004-32-4 9008-90-6, Permutit Q 9049-11-0, Dowex 2 9065-04-7, Dowex 21K 11138-21-9, Dowex 1 12640-54-9, Dowex 50 25087-26-7, Poly(methacrylic acid) 25153-40-6, Maleic acid-vinyl methyl ether copolymer 25232-41-1, Poly(4-vinylpyridine) 25300-64-5, Maleic acid-styrene copolymer 26101-52-0, Poly(vinylsulfonic acid) 26336-38-9, Polyvinylamine **28210-41-5**, Poly(p-styrenesulfonic acid) 37247-87-3, Amberlite CG400 37251-30-2, Duolite A-7 37265-12-6, Duolite C-20 37265-13-7, Duolite ES-63 39346-63-9, Duolite A-6 39346-64-0, Duolite C-3 39421-71-1, Duolite A-101D 53024-94-5, Duolite A-102D 53148-77-9, Ionac A-540 60407-99-0, Duolite A-30B 62031-38-3, Duolite ES-80 150923-27-6, Dowex CCR 1 150923-30-1, Ionac A 300 150923-31-2, Ionac A 550 150923-35-6, Permutit S 1
 RL: USES (Uses)
 (**separators** from microporous polymers or rubbers and, manufacture of permeation-selective, for all-vanadium redox **batteries**)

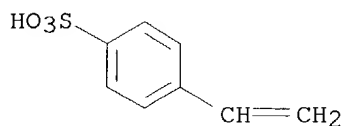
IT 9002-88-4, Polyethylene
 RL: USES (Uses)
 (silica-filled, separators from ion-exchange material and, manufacture of permeation-selective, for all-vanadium redox batteries)

IT **28210-41-5**, Poly(p-styrenesulfonic acid)
 RL: USES (Uses)
 (**separators** from microporous polymers or rubbers and, manufacture of permeation-selective, for all-vanadium redox **batteries**)

RN 28210-41-5 HCAPLUS
 CN Benzenesulfonic acid, 4-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 98-70-4
 CMF C8 H8 O3 S



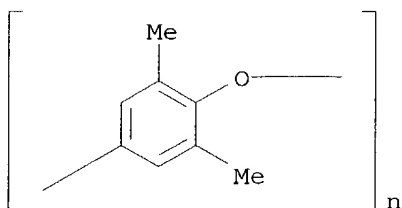
L20 ANSWER 52 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1993:476330 HCAPLUS
 DN 119:76330
 ED Entered STN: 21 Aug 1993
 TI Nonaqueous batteries with improved gaskets
 IN Yokoyama, Takao; Ooo, Fumio
 PA Matsushita Electric Ind Co Ltd, Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM H01M002-08
 ICS H01M006-14
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05054868	A2	19930305	JP 1991-216924	19910828
PRAI	JP 1991-216924		19910828		
GI					

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

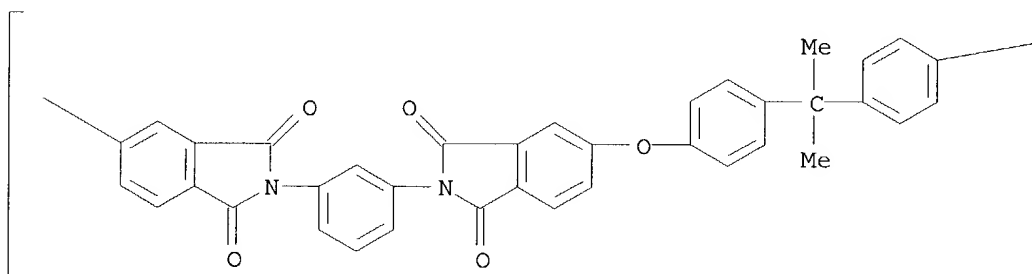
AB The batteries use amorphous heat-resistant thermoplastic resin gaskets for sealing. The resin may be poly(phenylene oxide), I, II, III, or IV.
 ST battery sealing polymer gasket
 IT Polyoxyphenylenes
 RL: USES (Uses)
 (gaskets, for sealing of nonaq. batteries)
 IT Batteries, primary
 (nonaq., amorphous heat-resistant thermoplastic resin gaskets for sealing of)
 IT Gaskets
 (battery, amorphous heat-resistant thermoplastic resin for)
 IT **24938-67-8**, Poly[oxy(2,6-dimethyl-1,4-phenylene)]
61128-24-3 123960-51-0 148509-13-1
 RL: USES (Uses)
 (gaskets, for sealing of nonaq. **batteries**)
 IT **24938-67-8**, Poly[oxy(2,6-dimethyl-1,4-phenylene)]
61128-24-3
 RL: USES (Uses)
 (gaskets, for sealing of nonaq. **batteries**)
 RN 24938-67-8 HCAPLUS
 CN Poly[oxy(2,6-dimethyl-1,4-phenylene)] (9CI) (CA INDEX NAME)



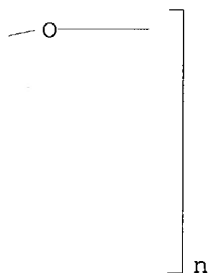
RN 61128-24-3 HCAPLUS

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,3-phenylene(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)oxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L20 ANSWER 53 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:9356 HCAPLUS

DN 118:9356

ED Entered STN: 10 Jan 1993

TI Binders for glass fibers for battery separators

IN Hisada, Nobuo; Okinaga, Nobuyuki

PA Sanyo Chemical Industries Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C03C025-02

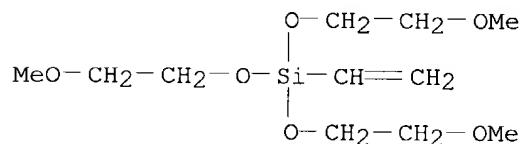
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

FAN.CNT 1

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

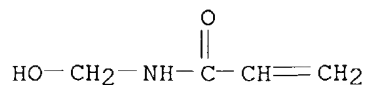
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04104922	A2	19920407	JP 1990-223999	19900823
	JP 07029816	B4	19950405		
PRAI	JP 1990-223999		19900823		
AB	The binders comprise polymerizable unsatd.-group-containing emulsifier 0.1-10, polymerizable unsatd.-group-containing silicon compound 0.1-20, and polymerizable unsatd. monomer 70-99.8 weight%.				
ST	silicon polymer binder glass fiber; battery separator glass fiber binder				
IT	Glass fibers, miscellaneous				
	RL: MSC (Miscellaneous)				
	(polymer binder for, for battery separators)				
IT	Binding materials				
	(silicon-containing polymer , for glass fiber battery separators)				
IT	Batteries, primary				
	Batteries, secondary				
	(separators, glass fiber-based, polymer binder for manufacture of)				
IT	83051-92-7	144699-93-4	144699-94-5	144699-95-6	144724-26-5
	RL: USES (Uses)				
	(binder, for glass fiber battery separators)				
IT	144699-92-3				
	RL: USES (Uses)				
	(binder, for glass fibers)				
IT	52556-42-0	93610-24-3	93610-25-4	102051-18-3	119588-64-6
	144429-83-4	144446-66-2	144834-16-2		
	RL: USES (Uses)				
	(emulsifier, in polymer binder composition, for glass-fiber battery separators)				
IT	144724-26-5				
	RL: USES (Uses)				
	(binder, for glass fiber battery separators)				
RN	144724-26-5 HCAPLUS				
CN	2-Propenoic acid, polymer with 6-ethenyl-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane, 1-ethenyl-2-methylbenzene, ethyl 2-propenoate and N-(hydroxymethyl)-2-propenamide (9CI) (CA INDEX NAME)				
CM	1				
CRN	1067-53-4				
CMF	C11 H24 O6 Si				



CM 2

CRN 924-42-5

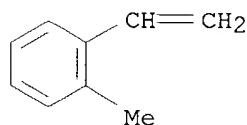
CMF C4 H7 N O2



CM 3

CRN 611-15-4

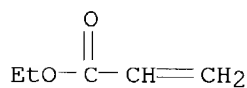
CMF C9 H10



CM 4

CRN 140-88-5

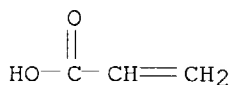
CMF C5 H8 O2



CM 5

CRN 79-10-7

CMF C3 H4 O2



8

L20 ANSWER 54 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1983:441097 HCAPLUS
 DN 99:41097
 ED Entered STN: 12 May 1984
 TI Method and measuring apparatus for determining the volumetric porosity of microporous battery separators
 AU Ivanov, Kh.
 CS Tsentr. Lab. Elektrokhim. Iztochnitsi Tok, BAN, Sofia, Bulg.
 SO Khimiya i Industriya (1922-1988) (1983), (2), 70-1
 CODEN: KINSAF; ISSN: 0368-5764
 DT Journal
 LA Bulgarian
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

AB The title method and apparatus are described, and volumetric porosity data for several **polymeric** separator **materials** obtained by this method are tabulated and compared with those obtained by other methods.

ST battery separator porosity detn app; polymer battery separator porosity

IT Batteries, secondary
(separators, volumetric porosity of microporous, determination of, apparatus for)

IT 9002-86-2 9002-88-4 **9003-35-4**
RL: USES (Uses)
(**battery separators**, volumetric porosity of microporous, determination of, apparatus for)

IT **9003-35-4**
RL: USES (Uses)
(**battery separators**, volumetric porosity of microporous, determination of, apparatus for)

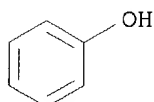
RN 9003-35-4 HCAPLUS

CN Phenol, polymer with formaldehyde (9CI) (CA INDEX NAME)

CM 1

CRN 108-95-2

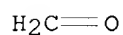
CMF C6 H6 O



CM 2

CRN 50-00-0

CMF C H2 O



L20 ANSWER 55 OF 55 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1979:26112 HCAPLUS

DN 90:26112

ED Entered STN: 12 May 1984

TI Polymer gaskets for batteries

IN Moriguchi, Kenji

PA Hitachi Maxell, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 2 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC H01M002-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 37

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 53104820 A2 19780912 JP 1977-19721 19770223

PRAI JP 1977-19721 19770223

AB **Battery gaskets** having improved resistance to stress cracking and electrolyte leaking are prepared by mixing polyamide resins with polyalkylene glycol-polytetramethylene terephthalate block copolymers. Thus, when alkaline **batteries** with **gaskets** prepared from a mixture of 95 parts nylon 12 [24937-16-4] and 5 parts polytetramethylene glycol-polytetramethylene terephthalate copolymer [**37282-12-5**] were kept at 30° for 3 mo, the electrolyte leakage was 9, vs. 17% for conventional **batteries**.

ST battery gasket polymer mixt

IT Gaskets

(blends containing nylon 12 and polytetramethylene glycol-polytetramethylene terephthalate copolymer, for batteries)

IT Batteries, secondary

(gaskets for sealing of, polymer blends for)

IT 24937-16-4

RL: USES (Uses)

(blends containing polytetramethylene glycol-polytetramethylene terephthalate copolymer, for sealing batteries)

IT 37282-12-5

RL: USES (Uses)

(block, blends containing nylon 12, for sealing batteries)

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